

## Living Cities I

***Citation for published version (APA):***

Pereira Roders, A. R., Krishnamurthy, S., Peters- van den Heuvel, A., & Lammers, D. G. O. (Eds.) (2015). *Living Cities I: first international conference on living cities perspectives, Eindhoven, 13 January 2015 : conference proceedings*. Technische Universiteit Eindhoven.

***Document status and date:***

Published: 13/01/2015

***Document Version:***

Publisher's PDF, also known as Version of Record (includes final page, issue and volume numbers)

***Please check the document version of this publication:***

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

***General rights***

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

[www.tue.nl/taverne](http://www.tue.nl/taverne)

***Take down policy***

If you believe that this document breaches copyright please contact us at:

[openaccess@tue.nl](mailto:openaccess@tue.nl)

providing details and we will investigate your claim.

# LIVING CITIES I

FIRST INTERNATIONAL CONFERENCE ON LIVING CITIES PERSPECTIVES

EINDHOVEN | 13 JANUARY 2015

## CONFERENCE PROCEEDINGS

EDITED BY

Ana Pereira Roders

Sukanya Krishnamurthy

Anne Marie Peters – Van der Heuvel

Daan Lammers

ISBN: 978-90-386-3893-5

Published by

Eindhoven University of Technology

Department of the Built Environment

Den Dolech 2, PO box 513

5600 MB Eindhoven

The Netherlands

1st edition, March 2015

E-book

© 2015 Eindhoven University of Technology

All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted, in any form or by any reason, without prior written permission from Eindhoven University of Technology.

Legal Notice

The Editors and the Publisher are not responsible for the use which might be made of the following information.

**COPY EDITOR / PROOFREADER**

Patrycja Pustelnik

**CONFERENCE LOGO DESIGN**

Léon Tonnaer

**COVER IMAGE**

Andrew Ruiz



## Foreword

**Living Cities I** is the first International Conference on Living Cities Perspectives organized by the department of the Built Environment, at the Eindhoven University of Technology, The Netherlands. This conference was organized by students for students, enabling them to gain experience, skills, knowledge and academic attitude. Conference papers have been target to a double blind peer review process. Students were invited to select their conference sessions – culture, society, economy and environment – and have been tutored in their paper writing exercise. They all had one aim in common, to reveal the state-of-the-art in published research, studying living cities. Though, they were also challenged to reflect upon that same state-of-the-art and the reliability of its narratives, by comparing similar research, using different methods and tools. Together, they achieved the literature review of about 830 publications, confirming a strong relation between methods and narratives, but above all, a great complementary, rather than contradiction.

Living cities fosters a conceptual shift in Urbanism and Architecture. As Hinchliffe & Whatmore (2006) explain, living cities departs from a prior understanding of cities as a built environment (as termed in conventional town and country planning), heading into an present understanding of cities where people are no longer considered inimical to nature, nor natures antithetical to cities, setting forward “a sense of ecological co-fabrication in which the life patterns and rhythms of people and other city dwellers are entangled with and against the grain of expert designs and blueprints”. Cities as “ecological disturbance regimes rather than ecological sacrifice zones” (Wolch, 1998). Students were invited to prepare the state-of-the-art in published research, studying living cities. In groups of 4-5 students, they selected one of the four sessions, triggered by the following keywords. Though, upfront they were hinted on their interrelation. They were also allowed to focus on other keywords.

<b>Culture</b>	<b>Society</b>	<b>Economy</b>	<b>Environment</b>
Urban resources	Urban social space	Globalization	Ecological Urbanism
World heritage	Inclusive and exclusive	Megacities	Landscape Architecture
Historic urban landscapes	space	Human capital	Architectural
Creativity	Urban ethnography	Global competition	Transformation
Innovation	Political landscapes	Creative industry	Structural Reuse
	Gentrification		Material Reuse

The papers composing this conference proceedings were selected in a peer review process, based on the students evaluations. Given the high quality of the papers, we have decided to extend the number of articles, from 20 to 30. Furthermore, two awards were given to the students. The Best Pechakucha Award was decided by the conference participants. The Best Paper Award was also based on the students evaluations, concerning the best paper per session. Follow the lists of the awardees.

## Best Pechakucha Award

### Culture

W.F.C.J. Habets, T.P.M. van Dartel, T.J.J.L. van Lieshout, Meilin Wang, R.C.A. Hopstaken.

*How are different methodologies used to examine the correlation between ethnic and religious attachment among Muslim immigrants in the Netherlands?*

### Society

Daniek Reijnders, Joost van Gorkom, Thijs van Tetering, Xiaoru Hua, Ahmet Bulut.

*Dear shrinking city, how can we help you?*

### Economy

Sander Bruinenberg, Rob van den Hoven, Christian Fredrix, Patrick van Dodewaard, Sjoerd te Bogt.

*How to measure the economic value of architecture?*

### Environment

Khuat Duy, Rico v.d. Gevel, Janet Snoeijen, Marike Schols, Jorinde Bijpost.

*Architectural transformation as a solution for vacant offices in the Netherlands.*

## Best Paper Award

### Culture

Moniek Kamphuis, Nina Claus, Marieke de Vries, Lizzy van Zon, Jaap Roeleveld.

*Differences in valuation between tourists and locals of world heritage in developing countries*

### Society

Daniek Reijnders, Joost van Gorkom, Thijs van Tetering, Xiaoru Hua, Ahmet Bulut.

*Dear shrinking city, how can we help you?*

### Economy

Guus Gielen, Kees de Visser, Dirk Jan Venema.

*Methodological approaches for measuring the influence of the creative class, a critical review*

### Environment

Khuat Duy, Rico v.d. Gevel, Janet Snoeijen, Marike Schols, Jorinde Bijpost.

*Architectural transformation as a solution for vacant offices in the Netherlands.*

My team and I congratulate the students on their first adventure in international conference and the papers presented in this conference proceedings. They evidence the spirit and strength of our students, sensible to key challenges of the XXI century, fearless to address them in their future practices.

Ana Pereira Roders

March 2015

## **Organizing + Scientific Committee<sup>1</sup>**

Akyol Z. (Zeynep)

Bakker E. (Vita)

Boer J.P.M. van den (Joost)

Doelen J.L.M. van der (Joost)

Dong Y. (Yingbo)

El-Kebir M.A. (Madiha)

Gerrits J.P.P.M. (Joris)

Guo W. (Wenbin)

Heesterbeek I.A.J. (Ilse)

Huveneers N.T. (Naomi)

Ion G.M. (Georgia)

Krishnamurthy, S. (Sukanya)

Lammers, D. (Daan)

Niu D. (Da)

Pelzer J.M.E. (Jeroen)

Pereira Roders, A. (Ana)

Peters – Van der Heuvel, A.M. (Anne Marie)

Pustelnik P. (Patrycja)

Reuver O. de (Odile)

Rooij M.G. van (Marinde)

Sadek S. (Sazan)

Steenhuis C. (Chris)

Tonnaer L.F.C.M. (Leon)

Valk R. (Rob)

Venema D.H. (Dirk Jan)

Wisse M. (Michael)

---

<sup>1</sup> Ordered alphabetically

## Schedule of Events

8:00

Registration and Coffee

8:30

Welcome: Ana Pereira Roders

9:00

Keynote presentation: Pieter van Wesemael

9:30

Session 1: Culture

10:30

Coffee break

11:00

Session 2: Society

12:30

Lunch

13:30

Session 3: Economy

Session 4: Environment (part I)

15:00

Coffee break

15:30

Session 4: Environment (part II)

17:00

Drinks

Concluding remarks

PechaKucha Awards

# Sessions Themes and Participants

## Session 1: Culture

*Moderator: Ana Pereira Roders*

Tim Willems, Léon Tonnaer, Michael Gravers, Laurie van Krugten.

*Methods to assess the cultural significance for preserving historic buildings*

Anne Pijl, J. Geerards, H.R. van der Veen, Nourdin Doudouh, Ming Guo. *Methodology research on the effects of globalization on collective identity in architecture*

Steven Huyps, Gerben Meussen, Frederic Leenarts, Bert Atsma, Najib Amali.

*The impact of climate change on historic urban landscapes*

K.M. van Kesteren, T.J.J. van der Steen, C.A. Laatst, E.L.K. Linder, P. Pustelink.

*Industrial Canal- and Waterfront Transformation & Cultural Change*

Mieke van Herwijnen, Martin Buil, Guy Prudon, Erik Zonneveld

*Urban Shrinkage: an analysis of research methodologies*

W.F.C.J. Habets, T.P.M. van Dartel, T.J.J.L. van Lieshout, Meilin Wang, R.C.A. Hopstaken.

*How are different methodologies used to examine the correlation between ethnic and religious attachment among Muslim immigrants in the Netherlands?*

Willem Rooding, Jeroen Rooding, Sven Vos, Lex Lagendijk, S. de Gaetano

*Management of the historic urban environment in a developing city*

Moniek Kamphuis, Nina Claus, Marieke de Vries, Lizzy van Zon, Jaap Roeleveld.

*Differences in valuation between tourists and locals of world heritage in developing countries*

Fatma Aslan, Saskia van Hees, Tom Weijjs, Frank de Koning.

*The appreciation of Vinex neighborhoods*

## **Session 2: Society**

***Moderator: Sukanya Krishnamurthy***

Mark Kanters, Joeri Souska, Emma Lubbers, Alice Janssen, Theo van Hove.

*We make the city, but which methods do we use?*  
*Which method(s) can be most successful in investigating bottom up urbanism?*

Julie Bosch, Koen Schraunen, Ulas Temel, Hendrik Bouwhuis, Lukas Roosenboom.

*The influence of surveillance on public space*

Mediha El-Kebir, Zeynep Akyol, Sazan Sadek, Yingbo Dong, Wenbin Guo.

*Demonstrations in Public Space*

Jeroen Pelzer, Joost van den Boer, Ilse Heesterbeek, Chris Steenhuis, Joost van der Doelen.

*Is this my city? Researching the methods that investigate how branding influences place identity*

Daniek Reijnders, Joost van Gorkom, Thijs van Tetering, Xiaoru Hua, Ahmet Bulut.

*Dear shrinking city, how can we help you?*

Dorota Maria Wehr, Anastasia Bordian, Jeanne Mattheij, Theen Persoon, Jasper van Rossum.

*Research methodology for social segregation in residential landscape of European cities.*

Peyvand Yavari, Anahita Haghparast, Eirini Sfakietaki, Sandra Sanchez, Natasha Stojmanovska.

*Gentrification and Residential Mobility*

Tom Steijns, Eric Weusten, Nadine Engelbert, Gwenda Harmsen

*Social interaction in public spaces*

Wendy van Kessel, Derk Stortelder, Lieke Robben, Niek Loeters, Ana-Maria Magdalinoui.

*Gentrification and the effect on displacement. The effectiveness of different research methods*

### **Session 3: Economy**

***Moderator: Daan Lammers***

Sander Bruinenberg, Rob van den Hoven, Christian Fredrix, Patrick van Dodewaard, Sjoerd te Bogt.

*How to measure the economic value of architecture?*

Ivo Grasman, Robbert-Jan Brankelman, R. Kuilman, Da Niu.

*Economic development and suburbanization in the United States*

Jos van der Linde, Bram van Kaathoven, Geert-Jan Stoop, Rutger Rouwendal, Teije Hartman

*Methods on global trade connectivity and its influence on the process of globalization in megacities*

Guus Gielen, Kees de Visser, Dirk Jan Venema.

*Methodological approaches for measuring the influence of the creative class, a critical review*

Michiel van Steenberghe, Cornelis Nuijten, Rico Jansen, Daan Hens, Kyoung Ho Choi.

*The Economical Interaction Between Informal and Formal Sectors*

### **Session 4: Environment**

***Moderator: Annemarie Peters-van den Heuvel***

**(part I)**

Hans de Jong, Twan van Lanen, Ruben Verbeek, Agri Karimi, Paul van Hout.

*Researching methods regarding the reuse and recycling of building materials.*

Gregor Roovers, Marjolein Driessen, Leonie Engberink, Anne Gähler, Pieter Deijkers.

*A research method analysis of redevelopment of religious built heritage.*

Stijn Faarts, Anna Igumnova, Negar Kolahi, Hasana Haidari, Arslane Benamar.

*Reuse of construction materials after demolition.*

Georgia Ion, Vita Bakker, Rob Valk, Joris Gerrits, Michael Wisse.

*Post-emergency reconstruction of a city.*

## **(part II)**

Khuat Duy, Rico v.d. Gevel, Janet Snoeijen, Marike Schols, Jorinde Bijpost.

*Architectural transformation as a solution for vacant offices in the Netherlands.*

Wilco Huppelschoten, Roy Kraak, Ferdi Tran, Jos Roerink, Maarten Klont.

*Exploring the influence and impact of tourism on the built environment.*

Paul Kersten, Bas Jansen, Ruud Kooloos, Mengxiao Wang, Gang Zhao.

*Bridging the Gap: Towards Holistic Research on the Reciprocal Relation between Landscape and Tourism.*

Marinde van Rooij, Naomi Huveneers, Odile de Reuver.

*Comparison of research methodologies in ecological urbanism.*

**Session 1: Culture**

# Methods to assess the cultural significance for preserving historic buildings

T. Willems, M. Gravers, L.T.F. van Krugten, L.F.C.M. Tonnaer  
*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Heritage valuation within this context becomes a tool to better understand the significance of heritage for different sections of society. “We value to understand, but also we value to preserve, and to manage our heritage. The valuation process aims to assess existing values as attached by the relevant population. [...] Valuation represents a crucial step in the management of cultural heritage especially when we narrow the concept to the built environment.” (Riganti, Nijkamp, 2004) The aim of this literature review is to create a wider knowledge base of the research methods used to create assessment methods to preserve historic buildings and their cultural significance. The wider knowledge base can be adopted for the development of assessment methods used for historic buildings and the cultural significance. The discussed research methodologies in this paper are: interview, questionnaire, data analysis and comparison analysis. Each method will address five articles within the topic of assessment of the cultural significance for preserving historic buildings. The conclusions of the articles will be criticized according to the used research methods in relationship to: each other, the assessment methods, and the topic of preserving cultural heritages. Articles are searched for on the Internet with keywords on the topic cultural heritage, research and assessment methods. These articles will be divided according to their research methodology. The pros and cons of each research methodology are discussed and related to the conclusions of the article. It can be concluded that the four research methods can complement each other in assessing the cultural significance for preserving historic buildings.

**KEYWORDS:** *CULTURAL SIGNIFICANCE, HISTORIC BUILDINGS, PRESERVATION, ASSESSMENT METHODS, RESEARCH METHODS*

## 1 INTRODUCTION

As an introduction to the problem field an overview of the definitions and interpretations of both cultural heritage and the need for valuing cultural heritage, assessment methods of cultural heritage are defined.

In general cultural heritage is defined as the record of mankind achievements and relationships with the world, in perspective through time. Riganti & Nijkamp (2004) reinforces this argument with the statement of:

“The concept of heritage is not given, but created by a community, by people who attach values to some objects, rites, languages, contexts, lifestyles, historic sites and monumental buildings. [...] Cultural heritage summarises people’s identities, shapes communities’ ones, and to this extent contributes to the creation of social capital.” (Riganti & Nijkamp, 2004)

This definition and characterisation of cultural heritage is supported in the articles of “The ongoing reuse of historic buildings is important work for both

World Heritage properties and listed cultural properties recognized by national or local governments. [...] Effective and proper evaluation for reuse selection may accelerate the implementation of sustainable conservation.” (Huey-Jiun & Zhi-Teng, 2009)

Evans (2005) supports this interpretation as “Urban regeneration should recognize local values, utilize local knowledge and expertise, and provide a sense of ownership to stakeholders, such as the residents and other beneficiaries in the area.” Valuing the cultural heritage can therefore create an understanding of how to preserve the cultural significance of historic buildings. Graham et al. (2000) broadened this definition as the approaches cultural heritage within the perspective of time. “Heritage is what we preserve from the past to inform our present” (Graham et al, 2000). Riganti & Nijkamp (2004) reflect on this as “Urban cultural heritage is the physical representation of a community identity that demands to be passed on to others.” (Riganti & Nijkamp, 2004)

Because of the urge for valuing the cultural heritage, assessment methods are created to manage the

built heritage for the benefit of current and future generations. By managing the relevance of cultural heritage the importance and value of the cultural heritage is evaluated. Riganti & Nijkamp (2004) confirm the need for assessment methods as “There is a need to develop comprehensive approaches and methodologies for adequate consideration of cultural heritage in management and planning for cities sustainable development” (Nijkamp & Riganti, 2008). Authors acknowledge that research efforts have insufficiently integrated to tackle the complex issues related to heritage conservation. The argument put forward is that valuation methods and assessment procedures should help to “better integrate conservation in the social agenda, enhancing social justice and equity in the provision and management of cultural heritage and therefore, play a part in the assessment of progress towards city sustainable development” (Nijkamp & Riganti, 2008). And consider the need for assessment methods as “inevitable since the social, ecological, historic and other cultural heritage characteristics are not usually governed and valued by market processes.” (Riganti & Nijkamp, 2004). “Decision makers or executors often encounter problems with taking decisions on which heritage is prioritized to be restored within the limited budget.” (Chang-Jun, et al., 2010) “Very few tools are available to determine appropriately restoration priorities for the diverse historical heritages, perhaps because of a lack of systematized decision-making aids.” (Chang-Jun, et al., 2010)

However, the built heritage is more over the property of institutions, governments and other collective groups which have a collective interest but often do not always recognize the cultural significance. For this matter a diversity of assessment methods such as heritage assessment, impact assessments, social cost-benefits analysis, life-span analysis, multi-criteria analysis, have been developed to assess the cultural heritage.

It is claimed that a framework of assessment methods can help for the management of “sensitive decision making process in relation to cultural heritages values is important” (SUIT, 2004) as it is “likely to help in establishing a constructive debate or dialogue between all the concerned actors.” (SUIT, 2004) Better consideration of cultural heritage values through assessment and appropriate actions, can help to minimize damage or loss caused by development project. (IAIA, 1994; IAIA, 2008) In the past “The lack of a structured decision support system has had a severe impact on restoration accomplishment and has caused ineffectiveness in prioritizing execution needs. Also, poor systems that determine restoration

priorities, based mainly on the severity of damage, create inefficient operation given the limited budget.” (Kim, 2006; Cultural Heritage Bureau, 2005)

“There is an extensive body of literature on cultural economics, and specifically on economic methods for assessing cultural heritage values. There is a considerable interest in the recent literature on urban redevelopment, which emphasizes connections between economic development decisions and the cultural aspects of cities.” (Nijkamp & Riganti, 2008).

The aim of this literature review is to create a wider knowledge base of the research methods used to create assessment methods to preserve historic buildings and their cultural significance. The wider knowledge base can be adopted for development of assessment methods of historic buildings and their cultural significance. Therefore this paper discusses the used research methods to define the assessment methods to preserve cultural significance of historic buildings.

## 2 METHODOLOGY

A literature review on different research methods is performed, concerning the assessment of preserving historic and cultural heritage buildings. The results of the review will be evaluated and will provide a broader understanding and possibilities of the reviewed research methods.

The research question was defined in an iterative process concerning the literature review. The literature review specified the research question which eventually led to the main research question ‘What are the advantages and disadvantages of the researched methods used for the assessment process for the cultural significance of historic buildings?’ Before the literature was reviewed, the research group developed a hypothesis which will be validated in the research process. This hypothesis states that some research methods are more suited to define the assessment methods than others.

Articles are searched for with search engines such as Scopus, Google scholar, Science direct, and Research gate. A variety of keywords related to the research question are used. Keywords similar to ‘cultural significance’, ‘historic buildings’, ‘preservation’, ‘conservation’, ‘rehabilitation’, ‘research method’, ‘transformations’, and ‘policies’. To decrease the amount of articles and increase the relevance combinations of keywords are used.

In case articles used a common research methodology, that research methodology was selected for

the literature review. The four methodologies that appeared most frequently were: interview, survey, comparative analysis and data-analysis. This led to a further selection of the articles and provided the five articles per research methodology.

To evaluate these twenty articles, two literature grids were created. The first grid contains a brief specification of the articles. It provides information about authors, publication date, journal and a summarisation of the problem field, state-of-the-art, aims and objectives, research methodology, keywords, and the main conclusion. The grid was used to provide a comprehensive overview of the articles and to make a short introduction and result part.

The second literature grid is related to the research methods. This grid gives an overview of the characteristics of the different methods. The grid provides information about sample size, sample size selection method, triangulation, the authors' place of origin and the authors' profession. The grid was used to criticize and value the conclusion of the articles.

The disadvantages and advantages of research methods were discovered with the lectures of this methodology course and by critically reflecting on the described methodology in the articles.

The methods were divided between the members of the research team. Each member was responsible for one specific method with five corresponding articles. After processing the articles, each method was peer reviewed to produce a comprehensive and coherent research paper. The peer review also improves the quality and functions as a last check.

By combining both literature grids and the results of each team member, an analysis on which research method can be used for assessment methods of cultural significance in the preservation of historical buildings can be made.

### 3 RESULTS

#### 3.1 Interview

Benefits of heritage areas are not fully explored and experienced (Ramwhati et. al., 2014). Valuation methods are strategic tools which can be used to assess benefits of transformations or management options. However, a clear method for evaluating is still lacking because of the complexity and non-tradable characteristic of historic buildings. Interview is an evaluation method and these are mostly focused on perceived values (Riganti & Nijkamp, 2004).

Community participation can give criteria for building conservation (Rahmwati et. al., 2014).

However, only respondents who were considered being community leaders by the locals were interviewed.

Lay people are mostly basing evaluations on forms while experts base them on knowledge or information. This is concluded from a comparative analysis between in-depth interviews with 20 inhabitants and 18 non-inhabitants (Coeterier, 2002). This is a low amount of interviews to generalize a conclusion. Respondents were asked to respond to pictures of an historic building. However, historic buildings have complex characteristics (Riganti & Nijkamp, 2004) and thus it is hard to evaluate from just one picture.

In-depth interviews were used to explore challenges of sustainable preservation (Yung & Chan, 2012). Sustainable preservation of historic buildings suits the needs of the present and future generations. (Riganti & Nijkamp, 2004) (Yung & Chan, 2012). Sustainability factors were discovered by literature and confirmed in 16 in-depth interviews. Only factors that were agreed by more than 50% were used. It is not clear where this 50% comes from so this could influence results. The interviews took between 45 and 90 minutes. Respondents were people who participated in adaptive reuse projects in Hong Kong (Yung & Chan, 2012). Critical notes have to be made on the amount of respondents, the wide time range of the interviews (long interviews can give more information than shorter interviews), and on the respondent selection.

Generalisation is not possible without taking the location of respondents into account. People who are actively involved (living or owning) property in districts with heritage conservation are more satisfied and more concerned with historic buildings. 67 interviews with respondents were chosen for their experiences and opinions and triangulation with several sources is used (Shipley, Jonas, & Kovacs, 2011).

Interviews in the above five articles are mainly used to discover the opinion of people. Especially the evaluation of cultural significance can be researched with interviews. These could be structured, semi-structured or unstructured interviews. Researches with (unstructured in-depth) interviews should take the role of the interviewer into account (both during the interview and analysis). For example thick descriptions or triangulation could improve the validity. Respondent selection influences outcomes, for example researches with randomly chosen respondents can be generalized with statistical methods (Creswell, 2009).

### 3.2 Questionnaire

Mostly as primary data source, a self-developed structured questionnaire is used, and in some cases the Likert scale (Mahmoud, et al., 2014) (Azhari & Mohamed, 2012) (Omar, Muhibudin, Yussof, Fauzi Sukiman, & Mohamed, 2013) is used to measure the knowledge, behavior, motives, opinions and attitudes from large group of public or stakeholders about preserving historic buildings. (Rashid & Ahmad, 2011) (Azhari & Mohamed, 2012) (Omar, Muhibudin, Yussof, Fauzi Sukiman, & Mohamed, 2013) (Mahmoud, et al., 2014) (Moy & Phongpanichanan, 2014)

The questionnaire is mostly used as an addition to other research methods and often based on data from pilot survey's, interviews with experts, and published and unpublished information obtained from books, journals, articles, reports, thesis and websites

The current practice of maintenance approaches in historic buildings are explored with 20 case-studies and a nine questions questionnaire. Which is prepared to assist the sessions with the maintenance management of historic buildings, authorities and other responsible parties (Rashid & Ahmad, 2011)

In the research to the relationship between the ever-growing importance of Chinese outbound tourism and the opportunities provided for the city of Melaka, a data analysis was collected form online forum 'BaiduTieba'. A questionnaire in English and Mandarins with open-ended text responses is adopted. The survey questionnaire is combined into two sections which are the tourists' demographics and tourist behaviour characteristics to explain the differences in tourist's attributes and what attracts mainland Chinese tourists to travel to Melaka (Yong Yeu Moy, et al., 2014)

The public perception of heritage buildings is explored with 178 surveys of seven sections of both open and closed-ended questions. 178 surveys were held randomly within city public spaces. Where respondents were briefed on the objectives and purpose of the survey before the questionnaire was filled in. Pre-test was conducted to ensure the feasibility of the questionnaire to reveals various reasons of the public. (Farhanah Nik Azhari, et al., 20124)

The stakeholder's perception was also explored in a set of seven but with only close-ended question. (Omar, Muhibudin, Yussof, Fauzi Sukiman, & Mohamed, 2013) A questionnaire has the advantages to define different opinions and responds from the public or stakeholders at their own pace and idea.

In the research to practice criteria for sustainable maintenance management, an e-mail based questionnaire was used in combination with a purposive

sampling technique to help to eliminate respondents who did not fit the requirements. The Likert scale and data is analysed through a relative importance index analyses, Kendall's concordance test and Chi-square test. (Sodangi, et al., 2014)

The researcher has autonomy over the design of the questionnaire which is specific to the aims and objectives of the research which allow researchers to collect factual information from large number. Findings are easy to score and analyse and mostly presented in form of Bar Charts, Pie Charts or Percentages.

### 3.3 Data analysis

Data can be gathered or consulted and subsequently be analysed to determine restoration priorities and prioritize needs regarding the preservation of historic and cultural heritage buildings. The results from the analysis can help substantiate decisions for policy makers, architects, executors and other parties concerning the preservation and protection of cultural heritage.

"And it may subsequently improve the acceptability of decisions." (Huey-Jiun & Zhi-Teng, 2009)

"It can support the development of conservation strategies for monuments and historical buildings." (Zeni, et al., 2011)

The articles of both Chang-Jun (2010) and Huey-Jiun (2009) are about constructing a model. These models can help as a decision support model for respectively the prioritisation of restoration needs (Chang-Jun, et al., 2010) and to determine reuse alternatives (Huey-Jiun & Zhi-Teng, 2009) for cultural heritage buildings. Both models are constructed by using the Delphi technique to determine the criteria and the degree of interdependence. This technique can efficiently accomplish tasks where there is a lack of statistical support for the conclusion drawn. (Chang-Jun, et al., 2010)

Performing the Delphi technique results in 5 criteria, which are then weighted by performing multiple analytic hierarchy processes. In combination with the feedback of the evaluation groups, consisting of 15 executors and 25 heritage experts this led to 24 criteria. (Chang-Jun, et al., 2010)

Performing the Delphi technique results in 6 criteria, which are then weighted by performing an analytic network process by which the relationships between the criteria can be determined (Huey-Jiun & Zhi-Teng, 2009).

The following step is to define a mathematical equation or matrix which can be used for the objective evaluation of cultural heritage buildings.

The articles of Silva (2014), Zeni (2011) and Jackson (2005) focus on a single aspect concerning the conservation of cultural heritage buildings.

The article of Silva (2014) analyses the indoor climate of a thirteenth century church using the standard EN 15757 and compares the data with other European case-studies and proposes a new method of analysis for temperate climates. The results can be used to determine points of interest for preserving the church. (Silva & Henriques, 2014)

The article of Zeni (2011) is about a long-term deformation analysis of historic buildings by performing a multi-sensor two-scale SBAS-DInSAR technique to monitor and collect data. The study can be used as an asset for the monitoring and risk prevention of the cultural and artistic heritage (Zeni, et al., 2011).

The article of Jackson (2005) studies the embodied energy of historic buildings, to be another factor in the equation of sustainable design. Embodied energy calculations could be used as a more quantitative method of measuring the overall environmental benefits of building renovation versus new construction (Jackson, 2005).

### 3.4 Comparative analysis

The comparative analysis can be used as both quantitative and qualitative research. For the methods that have been analysed in this study, the research method was mainly of qualitative nature. In general the articles compare a number of predetermined objects or areas with specific variables of interest. For the articles of Pickard (2002), Barthel (1989), Lee (1996), Benassi (2013) and de Boer (2006) the comparison is made by using a case study area. The articles then compare either the variables of one area, as for the article of Benassi (2013) or multiple areas to one variable, as for the article of Lee (1996), or multiple areas to multiple variables as for the articles of Pickard (2002), Barthel (1989) and de Boer (2006).

The article of Benassi (2013), which compares only one area to multiple variables, is able to create an in-depth research on the variables of policies, financing and preservation strategies and their change over time. Because the article is structured in a chronological order, the variables are interconnected and create an overview of the variable dynamics over time. The down side of this article in specific is that it has no clear conclusions or content arrangements, which results in an unclear structure of the article.

The article of Lee (1996), which compares multiple areas to a single variable, is able to create a

broad comparison of areas in Singapore to the single variable of land use. This research is accompanied with a field survey, which is used as a data-collection tool, however the research compares the progress of conservation to the different areas. It does not include possible interdependencies between the areas as the research of Benassi (2013) did with the interdependency of the variables. The method of Benassi (20103) results in a broad view of the influence of the variable to multiple areas.

The articles of Pickard (2002), Barthel (1989) and de Boer (2006) compare multiple areas to multiple variables. This method is most qualitative because the researches are developing theories and individual interpretations according to their view of the interdependency of both variables and areas.

In the research of Pickard, the large amount of objects results in a generalisation of the comparison and results in a less in-dept research. However the method does not merely focus on the areas itself but also reviews the interconnection between the policies of the different areas.

In the research of Barthel (1989), the comparative analysis not only indicates the differences of the objects but also the interdependency and their influences to each other.

In the research of de Boer, the analysis reviews both similarities and differences of the researched objects. The study relates two main variables to the three objects and therefore creates an in depth view of the specific variables according to the cases.

As a research method, the comparative analysis can create an in-depth view on the method to assess cultural heritage. The conditions for the research methodology require a combination of no more than three case studies and three variables. The methodology should analysis both the variables itself as their interdependency for the areas or case studies.

## 4 CONCLUSION & DISCUSSION

The main research question stated ‘What are the advantages and disadvantages of the researched methods used in the assessment process for the cultural significance of historic buildings?’ The four selected research methods give an overview of how they can be applied to contribute to topics concerning the preservation of cultural heritage. Each method has its own advantages and disadvantages. The literature grid helped with comparing the advantages and disadvantages of each research methods.

Interviews or questionnaires are most suited for perception subjects such as the evaluation of cultural

significance. They are suited to gather data, which in a later stage can be valued in an objective way. For interviews the role of the interviewer and sample size selection should critically be reflected. Questionnaires cannot anticipate on answers of respondents so follow-up questions are not possible, but the role of the interviewer will be lower. Electronic data collection method with email bases questionnaires proved advantages as it allows participants to take their time to provide thoughtful responses and fully anonymous.

Data analysis and comparative analysis are research methods which make use of gathered data. This can be data in all kind of forms such as data from interviews, questionnaires, policies, literature or measurements. The data analysis and comparative analysis can be used in a triangulation of research methods. For the comparative analysis this triangulation results in a structured research in which the first part of the research involves an analysis of the single object compared to multiple variables, and a second part in which these objects are compared and interrelated to the defined variables. Despite the mostly objectively created first part of the comparison analysis, the second part involves mostly a more subjective analysis because the comparison is more assumptive.

Objective weighing and statistical analyses of data can be done by data analysis. Depending on the goals of a research, data analysis can be part of the methodology and upgrade the data to a statistical level. After objectifying the data, mathematical equations or matrixes can be defined which can be used for the objective evaluation of cultural heritage buildings.

Most authors of the twenty articles have a technical or architectural background or are related to university departments. Noteworthy is the origin of professors from the articles of questionnaire. All of them are from Malaysia while the other research authors are more scattered around the world.

The four research methods that are reviewed are not mutually exclusive, but can complement and strengthen each other. For example, literature review and data analysis can support the design of questionnaire and interviews. The interviews and questionnaires will gather data and those can be used in a comparative or data analysis. The triangulation of research methods will improve the reliability of the outcomes.

## BIBLIOGRAPHY

- Azhari, N., & Mohamed, E. (2012). Public Perception: Heritage Building Conservation in Kuala Lumpur. *Procedia - Social and Behavioral Sciences* 50, 271 – 279.
- Barthel, D. (1989). Historic Preservation: A Comparative Analyses. *Sociological Forum*, Vol. 4, No. 1, 87-105.
- Benassi, L. (2013). Reuse of Historic Buildings in Italy. *not published, Scuola Normale Superiore Pisa*.
- Boer, S. d. (2006). Diffusion or diversity in cultural heritage preservation? comparing policy arrangements in Norway.
- Carter, G. (2007). Balancing use and preservation in cultural heritage management.
- Chang-Jun, K., Wi Sung, Y., Ung-Kyun, L., Ki-Jun, S., Kyung-In, K., & Hunhee, C. (2010). An experience curve-based decision support model for prioritizing restoration needs of cultural heritage. *Journal of Cultural Heritage*, 430-437.
- Coeterier, J. (2002, 01). Lay people's evaluation of historic sites. *Landscape and Urban Planning*(59), pp. 111-123.
- Creswell, J. (2009). In *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. London: Sage.
- Huey-Jiun, W., & Zhi-Teng, Z. (2009). A multi-objective decision-making process for reuse selection of historic buildings. *Expert Systems with Applications* 37 (2010), 1241-1249.
- Jackson, M. (2005). Embodied Energy and Historic Preservation: A needed Reassessment. *APT Bulletin*, 47-52.
- Lee, S. (1996). Urban conservation policy and the preservation of historical and cultural heritage. *Cities*, vol. 13, 399-409.
- Mahmoud, S., Khamdi, F., Idrus, A., Arazi, M., Hammad, D., & AhmedUmar, A. (2014). Best Practice Criteria for Sustainable Maintenance Management of Heritage Buildings in Malaysia. *Procedia Engineering* 77, 11 – 19.
- Moy, L., & Phongpanichanan, C. (2014). Does the Status of a UNESCO World Heritage City Make a Destination More Attractive to Mainland Chinese Tourists? A Preliminary Study of Melaka. *Procedia - Social and Behavioral Sciences*, Volume 144, 280-289.
- Omar, S., Muhibudin, M., Yussof, I., Fauzi Sukiman, M., & Mohamed, B. (2013). George Town, Penang as a World Heritage Site: The Stakeholders' Perception. *Procedia - Social and Behavioral Sciences*, Volume 91, 88-96.
- Pereira, A. (2014). Unsustainable historical buildings.
- Perhavec, D. (2013). Systematic approach for sustainable conservation. *Journal of cultural heritage*, 1-7.
- Pickard, R. (2002). Area-based protection mechanisms for heritage conservation: a European comparison. *Journal of Architectural Conservation*, 69 – 88.

- Rahmawati, D., Supriharjo, R., Setiawan, R., & Pradinie, K. (2014). Community Participation in Heritage Tourism For Gresik Resilience. *Social and Behavioral Sciences*(135), pp. 142-146.
- Rashid, R., & Ahmad, A. (2011). Overview of Maintenance Approaches of Historical Buildings in Kuala Lumpur – A Current Practice. *Procedia Engineering* 20, 425 – 434.
- Riganti, P., & Nijkamp, P. (2004). Valuing Cultural Heritage Benefits to Urban and Regional Development. *44th European Congress of the European Regional Science Association Regions and Fiscal Federalism* (pp. 1-16). Porto: University of Porto.
- Shipley, R., Jonas, K., & Kovacs, J. (2011). Heritage Conservation Districts Work: Evidence from the Province of Ontario, Canada. *Urban Affairs Review*(47), 611-641.
- Silva, H., & Henriques, F. (2014). Microclimatic analysis of historic buildings: A new methodology for temperate climates. *Building and Environment*, 381-387.
- Vakhitova, T. (2010). Cultural Heritage in Impact Assessment Tools. *IAIA10 Conference Proceedings*.
- Wang, J., & Jiang, N. (2007). Conservation and adaptive-reuse of historical industrial building in China in the post-industrial era. *Higher Education Press and Springer-Verlag*.
- Yung, E., & Chan, E. (2012). Implementation challenges to the adaptive reuse of heritage buildings: Towards the goals of sustainable, low carbon cities. *Habitat International*(36), pp. 352-361.
- Zeni, G., Bonano, M., Casu, F., Manunta, M., Manzo, M., Marsella, M., . . . Lanari, R. (2011). Long-term deformation analysis of historical buildings through the advanced SBAS-DInSAR technique: the case study of the city of Rome, Italy. *Journal of Geophysics and Engineering*, S1-S12.

# Methodology research on the effects of globalization on collective identity in architecture

N. Doudouh, J. Geerards, M. Guo, A.M. Pijl & H.R. van der Veen

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** In this paper we investigated five methods that are used to do research on globalization, collective identity and architecture. Globalization, as the mainstream nowadays, has dramatically changed the contemporary society which includes the effects on the representation of architecture which is defined by collective identity. This topic is much debated in recent research but often in a way which is very abstract and theoretical. Therefore, there is still a lack of knowledge of this topic and the different methods applied.

This might point out a gap in research methods being applied on the subject. It will be useful to see which methods are used to research this subject and whether they make a contribution to its understanding.

Therefore this paper investigates how different methodologies are implemented to study the influence of globalization on the representation of a collective identity in architecture. It results in exploring literature, which is established through the application of five different methodologies, namely; Literature review, Interviews, Case studies, Questionnaire surveys, and Observations. A literature grid was developed based on the data collected from current literature and articles on the specific topic.

With the use of an organized literature grid, in which all main findings and arguments gathered through thorough exploration of the chosen literature were arranged by method, we aim to give an adequate review on how the considering methodologies have or have not formed a reliable investigation upon our research question. Herewith, some limitations of the chosen literature are noticed, and have therefore been taken into account. The outcome, which each methodology had to offer, will result in a more equivalent comparison of the reviewed methods and outcomes.

**KEYWORDS:** *Methodology, Globalization, Collective Identity, Architecture*

## 1 INTRODUCTION

Collective identity and the effect of globalization are much debated and are part of a highly political and ideological discussion. (King A. D. 2004) In 2004 A. D. King wrote, 'As others have commented (Cvetkovich and Kellner 1997; Short 2001); after well over a decade of often abstract, theoretical debates about globalization, post nationalism and other conceptual notions, where can we point to the material, concrete manifestations of their existence?' (King A. D.) Obviously according to King, there is a lack of knowledge and understanding of

globalization and identity, whereas there is no shortage of theoretical debates. Architecture plays an important role in not only representing identity and its changes due to globalization, but also in the debate on globalization and identity (McNeill D. and Tewdwr-Jones, 2003) There seems to be no shortage of theoretical debates and disagreements. (McNeill D. and Tewdwr-Jones, 2003) Some theorists are concerned about losing local identity (Czumalo 2012). On the contrary, architects working on an international level, like Rem Koolhaas, seem to celebrate globalization in their architecture. However, none of them are very clear on what globalization and collective identity contain.

These disagreements and vagueness might point out a gap in research methods being applied on the research, causing a lack of knowledge concerning the topic. It could also indicate that certain methods are not appropriate to gain knowledge on this theme. This paper investigates how different methodologies are implemented and what they contribute on this highly contested subject.

In this paper we show how five different methods (theoretical literature review, interviews, case studies, questionnaires, and observations) are being used to study the effect of globalization on collective identity in architecture. We establish what the contributions are of the different methods to the understanding and practice of the topic. The advantages and disadvantages of the methods are analyzed and the reliability of this form of investigation. We will establish whether there is a lack of research methods being applied on the topic and whether there are missing applications of methods. We will give a suggestion on methods that could do an addition to our topic in the future.

Not much research has been done on the methods applied on the subject of the effect of globalization on collective identity in architecture. A. D. King did do an extensive literature study on globalization in his book 'Spaces of Global Cultures: Architecture, Urbanism, Identity'. This research is not explicitly connected to collective identity, but gives an overview of different approaches on globalization. First, the methodology applied to study the five methods will be explained. The results are divided into five paragraphs according to their method. These paragraphs contain an analysis based on implementation, contribution, advantages, disadvantages and reliability of the method in the area of globalization, collective identity and architecture. The conclusion contains a comparison of the methods and a suggestion on methods that could do an addition to our topic in the future.

## 2 METHODOLOGY

The research methodology of this paper is investigating five different kinds of methodologies exploring this topic. The five methodologies are: literature review, interviews, case studies, questionnaire surveys, and observations. These methods are defined according to the following descriptions:

- Literature-based theoretical analysis comprises a selection and discussion of theoretical material and descriptive material, within the context of the topic.
- Kvale (1996) provides a definition for the qualitative research interview: "An interview whose purpose is to obtain description of the life world of the interviewee with respect to interpreting the meaning of the described phenomena" (Kvale, 1996, p.5).
- A case study is a research method in which the researcher is trying to get a detailed understanding on one or a few spatial objects or processes in its context. These objects or processes can be an organization, a business, the creation of a particular law, the siting of a landfill, et cetera (Doorewaard et al, 1995).
- Questionnaire survey is the method using a set of written questions for the purpose of gathering information from respondents and followed by data analysis (Trochim & William M., 2006). It is one of the two broad categories of survey method (the other one is interview).
- An observational study is a study in which a researcher simply observes behavior in a systematic manner without influencing or interfering with the behavior.

Each methodology is studied based on the assessment and comparison within five articles using this specific research methodology. The total twenty-five articles were collected through Scopus and Google Scholar search engines according to the keywords (methodology, globalization, collective identity, architecture). For some of the methodologies studied in this paper, it occurred that the research was not sufficient, so that less than five articles could be found regarding all of the

keywords. Therefore, possible selections of the keywords were used to extend the scope of searching articles (i.e. the five articles of questionnaire survey include three articles containing the whole keywords and two articles using the keywords 'methodology', 'globalization' and 'identity'. 'Architecture' was excluded in these two articles). Literature review is implemented by establishing literature review grid in which five articles of each methodology are transversely compared in the following aspects: arguments/main findings, evidence used, article structure and keywords. Subsequently, a comparative research method is applied on the basis of the statements and implemented ways to find the advantages, disadvantages, contribution, and sufficiency of each method. Qualitative analysis is conducted in order to examine the reliability and validity of different methodologies studying the relationships between collective identity and globalization.

### 3 RESULTS

#### 3.1 *Literature-based theoretical analysis*

In the five papers that are studied the method is generally used to confirm a suspicion or to prove or form an opinion. Theories are selected to fit the statement that is made. Therefore it cannot always be called a research method, because it implies that something is discovered, established and new knowledge comes into existence. Rather it is a judgment method; a method to form a motivated opinion.

The main contribution of the method is that it raises an awareness of concerns regarding globalization, architecture and collective identity. Whether these concerns are legitimate is not proven, but it encourages to be aware of these issues, react on them and do further studies. For example, Czumalo (2012) states that architecture should represent a collective identity to connect man to a place and to others in his community. Although he raises concern on this subject, it is not proven that it is a problem.

The bold statements that are made make it easy for the reader to adapt his or her attitude on the issue and to act upon. Its outspoken character makes this theory easily applicable in theory and practice and provides the research with high social relevance. The results are usually general for the topic, which make them widely usable independent of a specific context. Adam (2008) states that globalization is a new Western world order, with a Western based economy and Western based ideology of liberalism. This is a bold statement that invites to question it and to take a stand.

The main negative side to this method is subjectivity. The results, biased statements, are not proven except for two researches, which only prove that the phenomena exist. Jones proves through the study of state architecture in the Victorian age that 'the past has proved to be a powerful legitimating force for the aims and aspirations of state definitions of the nation' (Jones, 2004). McNeill and Tewdwr-Jones (2003) proof that the architectural mega project is a key tool in the search for a new representation of national identity through the theoretical study of the Opera House in Cardiff. These studies are highly selective and do not indicate on what scale the phenomena occur.

The method is sensitive to being badly used and there can be great differences in quality. These differences are expressed in three aspects. A difference is in the method being clear. The way the method is used is sometimes obscured, which makes it hard to retrace the steps that are made that lead to results. Jones, King and McNeill and Twedwr-Jones are clear, Adam and Czumalo are not. The second difference is in the structure of the research being clear. It is sometimes unclear, making it hard to distinguish true arguments from statements and statements presented as arguments. King and McNeill and Twedwr-Jones are clear, Jones, Adam and Czumalo are not. A great difference exists between researchers who select arguments to prove their statement, like Czumalo and Adam, and researchers who gather and analyze all statements on a subject, like King. Two researchers are clear that

they only proof the existence of the phenomena (Jones, Twedwr-Jones), although they still tend to generalize their statements.

Much theoretical analysis has been done on the subject and many statements have been made without being proven true. For future research it is advisable to question those statements.

### 3.2 Interview

The main finding on the reviewed articles is that the research method is used in different ways; in four out of five articles, not only interviews, but a combination of different data-gathering techniques was used to conduct research. The articles mostly rely on fieldwork, which besides interviews includes the studying of (planning) documents (Drury, Reicher & Scott, 2003 and Swensen, 2012) or participant observation (McDonald, 2002). The interview method itself was differently used as well; semi-structured focus group interviews formed the main data source for the articles by Swensen (2012) and McDonald (2002), as where Drury, Reicher & Scott (2003) and presumably Lamont & Molnar (2001) based their findings on unstructured interviews. The number of participants varies or in some articles is not even mentioned. In the articles by Drury, Reicher & Scott (2003) and Swensen (2012) it becomes clear that the interviews were recorded and transcribed, this remains however unclear in the other articles. In the same two articles the methodological approach is elaborated extensively, while in others this information is mostly left out.

The contribution of the interview method within the selected articles was mainly focused on the topic of collective identity. None of the sources is based on solely architecture, nor on the representation of collective identity therein. Collective identity *does* get linked to globalization though; for example, the undertaken unstructured interviews with activists in the article by Drury, Reicher & Scott (2003) show that there was a transformation in collective identity boundaries towards a 'community'. People involved in local protest came to see themselves as part of

wider social groupings and even global forces of resistance; globalization among activists.

Interview is a useful method to obtain detailed information about personal feelings, perceptions and opinions, and it allows for more detailed questions to be asked. Ambiguities can be clarified and incomplete answers can be asked upon to complete them. As becomes clear from most articles, the strength of the qualitative research method of interviews lies in its ability to obtain situated knowledge. Therefore the applicability can be considerably high. In some of the articles, the interviewee's own words get quoted and, as mentioned before, some of the interviews were recorded or videotaped (to take non-verbal signs into account). This all contributes to the reliability. The articles by Swensen (2012) and Cochrane & Passmore (2001) are informed by interviews with a range of significant (local) actors which provides a wide and reliable view on the subject.

In most articles interview was not the only method whereupon the research for the article was conducted, e.g. data was also obtained by fieldwork; analysis of documents, direct observation, collective discussions, etc. Because of this, and because of the lack of describing how each source influences the conclusion, it remains difficult to understand on which data the conclusion is drawn. Most likely the conclusion is based on a combination of research methods. Furthermore, the interview method can be (too) subjective; different interviewers may understand and transcribe interviews in different ways, additionally, the interpretation of non-verbal signals can be different.

Each of the selected articles addresses one or two topics of our research subject, however, none of them addresses our subject entirely. Articles regarding the research topic of collective identity & globalization within architecture are not often based on interviews, implying that the selected articles address this topic inadequately.

### 3.3 Case study

The articles connect theory to practice, because they study an object with the use of theory. All case studies begin with a research question that has been found in the literature. Subsequently, the case studies are selected and analyzed, whereupon the articles end with a conclusion.

The main contribution is that this method provides detailed information about the relationship between globalization, architecture and local identity. However, the articles show differences in reliability in different ways. Firstly, the method is sensitive to being badly used and there can be great differences in quality. For example, the case of Amsterdam is written by a professor. The quality of argumentation (qualitative data) and the findings are therefore reliable. But the two case studies from Eldemery are more superficial and it seems that Eldemery 'abused' the cases to find evidence for the theoretical part. The second reason is that the extent in which case studies are elaborated is sometimes not completely clear. This means that the researcher cannot give his or her recommendations in relation to other not-selected cases because the context of the case is not clear. The third reason is the extent in which research is general versus in-depth. The single case study of Amsterdam provides detailed information about mass tourism, globalization and architecture. But the information in the Istanbul multiple case study, is a comparison between different cases. This information is more superficial and general in comparison to the single case study. The final reason is that there are great differences in the way data is collected. All studies use some kind of literature as a basis. In the case of Singapore the researcher uses quantitative and qualitative data as well. The quantitative data is understandably more objective and in the end more reliable than the qualitative data. The researcher was looking for a more general conclusion. Additionally, a case study can be a literature-based study but most times it is applied by another method.

### 3.4 Questionnaire

According to the five articles which use the questionnaire method, respondents are asked a series of questions in terms of their opinions about the influences of globalization on the collective identity of architecture (or building industrial, Mbamali, I. & Okotie, A.J. 2012). Then, the data is statistically analyzed to find the tendencies of people's perception. The studied articles generally include steps which are questionnaire design and data analysis. These two steps are clearly described in the articles, which can make it easier to repeat the research. The stage of questionnaire dissemination is rarely mentioned but must be implemented between these two steps. According to the studied articles, close-ended questions are usually produced and the quantitative data of the responses are statistically analyzed to find the tendency of public views.

For our topic both opinions of general people and architects are important. Common people are chosen to investigate the views of the public, while architects and experts are chosen to explore the strategy dealing with globalizing identity. Although the answer for each respondent is subjective, by statistically analyzing a large number of people the results are relatively objective compared to the other four methodologies (in the articles of Lin & Lee 2012, Ibrahim 2013, and Barazideh et al 2013).

By using the questionnaire method, a broad range of data which is unique to individuals (e.g. attitudes, opinions, beliefs, values, behavior, factual) can be collected quickly and efficiently compared to other research methods. Furthermore, the questionnaire method can guarantee the reliability by the fact that every respondent gets asked the same questions in the same way. Additionally, advanced statistical techniques are used in two of the reviewed articles (Mahgoub, Y. 2007, and Mbamali, I. & Okotie, A.J. 2012) to analyze the data and determine the validity and reliability. The findings of questionnaire method are easy to be generalized from sample to target population. And the results could be both universal and relatively specific for the particular aspect of the topic, depending on the design of the questions. For

example, in the article written by Ibrahim (2013), the questions concentrate on people's views on the elements of buildings (roof, wall ,etc.) The other article by Lin&Lee (2012) includes many aspects of the local society and has a large sample for each aspect. However, the format of the questionnaire limits the possibilities of studying more complex issues in great depth and details, especially for questionnaires with close-ended questions. Three of the five articles (Lin & Lee 2012, Ibrahim 2013, and Barazideh et al 2013) are studying the relatively superficial phenomenon of globalization. The data gathered in these articles are mostly general people's opinions (or attitudes, values, behavior, etc.) instead of experts'. In the other two articles, the architects or experts are chosen to be the respondents (Mahgoub, Y. 2007, Mbamali,I.& Okotie,A.J. 2012) to study the more in-depth and professional aspects of this topic. That is to say, the respondents differ according to the depth of the topic and its target population.

The method applied in the specific subject is inadequate in the way that only three of the five articles that were found are closely relevant to the topic.

### 3.5 Observation

In three of the five reviewed articles (de Kloet 2014, Conversi 2013, Antonsich and Holland 2012) the researchers implied the method of observation not really as a tool for practical fieldwork, but rather developed an alternative, as a tool to observe objects and data (architecture, scripts of critique, data analysis). In the other two articles (Delheya 2014, Pavlovski 2013) most of the observations have been devoted to contemplating on other previous investigations to improve our knowledge and insight in this particular subject.

In terms of observation, it seems hard to find a clear understanding of the concerning subject through the reviewed articles. Actual fieldwork as well as observation of cases have not given any decisive answers to the question. Despite the overall meager contribution from the methodology of

observation, two articles (de Kloet, 2014 and Antonsich & Holland, 2012) claim to have shown existence of this phenomenon of collective Identity. De Kloet, by describing European collective identity in reflection to a copying mirror-project which occurs in China. In his article, he contributes to the research on the concerning subject by using architecture as a tool to assess collective identity as a result of globalization. By using architecture as a measurement, it contributes to the concerning subject, but simultaneously it becomes less accurate because of the fact that its existence is based upon the knowledge of the chosen other one. Antonsich and Holland (2012) state that the relationship between territory and collective identity in the age of globalization, which they claim are closely related to each other, is a complex phenomenon to investigate. Not in terms of architecture, but rather in terms of blending economies in Europe, their investigation relies on the analysis of data which is based on territorial attachment of inhabitants in Europe on four levels (local, regional, national, European). The fact that it is based upon a broad level of sensibility of collective identity make the statements made by the researchers better to understand. But the data used by Antonsich and Holland didn't emerge from self-performed fieldwork, which makes the actual findings less traceable and not fully reliable.

Observation can take diverse forms, from informal and unstructured approaches to tightly structured, standardized procedures and can yield diverse types of data, both qualitative and quantitative. It has the potential to be performed through other methodologies. Because it can take diverse forms, researchers can control the time they consume to operate. They have the possibility to use previous data collection to argument and imply it in forming their statement.

Because observational research can take diverse forms, which makes the research broader, it can also result in a less accurate investigation. It can be modified by researchers to be less time-consuming and at the same time it can become more subjective than intended. Furthermore, the chosen and

reviewed articles have shown not much contribution nor reliable definitions of the phenomena which are reviewed. From the review of the chosen articles it is perceived that far too little observational research has been performed adequately to give a decisive contribution to our understanding of our subject. Researchers have the tendency to name it observational when it is based on previous fieldwork or an intention to improve observational research by theory. Observational study includes actual fieldwork, where the important pillars concerning our subject are studied without interfering.

## 4 CONCLUSIONS

### 4.1 *Discussion*

In the introduction was stated that globalization and collective identity in architecture causes much debate. This possibly could point out a gap in research on the topic. We contend that indeed much has been stated and not much has been proven. There is a gap between general theories and in-depth studies. These general theories are mostly literature-based researches that remain speculative of nature. In-depth studies like case study, observation, and questionnaire are specific in such a way that generalizations cannot be made. Since this topic is of a major social relevance in this age and globalization is progressing, it is important to connect in-depth research to theory in order to develop an evidence-based theory that is applicable for architects and others concerned with globalization and collective identity.

### 4.2 *Summarizing thoughts*

Above all, the methods contribute to the subject all in a different way and often complement each other. Literature analysis has results that are the most generally applicable of all the methods and raises the most concerns on globalization and identity, but is however very subjective and does not prove whether we actually should be concerned about identity and globalization. It is a good starting point for other

forms of research like questionnaire, case study and interview to get a basic idea of the subject and to test statements that are made in literature review studies. A case study can relate the theory to the object, an interview to the personal experience and a questionnaire, because it is quantitative research, can prove whether the results are statistically significant. However, they are usually specific for a case, place or group of people, through which statements in literature review hardly ever can be proven. In short, the more specific the research method becomes, the more objective it becomes, but the relevance decreases as well. How the questionnaire and case study are implemented is clearly described and not always clear for theory analysis, interview and observation. The ways of implementation of questionnaire survey and case study could dominate the study. The questionnaire and interview methods can be implemented remotely and thus prevent the geographical dependence of this topic, while case study and observation mostly rely on actual fieldwork. It is very difficult to retrace the literature analysis method while it is much easier to repeat or continue the research using questionnaire and observation. Much theoretical analysis and many case studies have been done on this subject while the research using the other three methods is inadequate. However, these three methods can help improve the knowledge and understanding of the topic.

### 4.3 *Acknowledgement limitations*

In this paper, only five methods are studied and each method is only analyzed based on five articles. Consequently, the reliability cannot be completely guaranteed.

### 4.4 *Recommendations for further research*

For further research, mixed methods are highly recommended to apply because this is a very wide topic, with many aspects regarding globalization that cannot be intensively studied using a single method.

It will be useful to find more studies that proof a statement of literature-based theoretical analysis,

like McNeill and Twedwr-Jones and Jones, but also to find studies that contradict them. The other four methods can be combined with it to help (dis)prove the statements. Future research could give an oversight on the debate on collective identity, like King did on globalization, to gain an understanding of the subject and as a reference point for future debate.

## ACKNOWLEDGEMENTS

Carrying out this assignment consisted of writing an abstract, analyzing twenty-five articles and book chapters with the use of a literature grid, writing this methodological research paper, and finally presenting the results by a PechaKucha presentation. During this process we have received the help and guidance of different persons who deserve our great appreciation. Our gratitude goes out to all of those who have directly or indirectly contributed to completing this assignment, like of course our very own team members but also some fellow students. But above all, we would like to show our gratitude to our 'Culture group' tutor Dr. Ana Pereira Roders (Eindhoven University of Technology) whose passion for research methodology has had a lasting effect on us. We would also like to thank her for providing us with valuable guidelines for the assignment throughout several weekly consultations. The completion and end product of this assignment provide us with great satisfaction.

## REFERENCES

- Adam, R. (2008). Globalization & Architecture. *Architectural Review*,
- Antonsich, M., & Holland, E. C. (2012). Territorial attachment in the age of globalisation: The case of Western Europe. *European Urban and Regional Studies*, vol. 21 no. 2 pages 206-221.
- Barazideh, J. (2013). Globalization and ethnic identities (case study-- the Province of Kohgolooyeh and Booyerahmad, Iran). *International Research Journal of Applied and Basic Science*, Vol, 5 (1): 24-28.
- Cochrane, A. & Passmore, A., (2001). Building a national capital in an age of globalization: the case of Berlin. *Area*, Volume 33. Issue 4. pages 341-352.
- Conversi, D. (2013). Between the hammer of globalization and the anvil of nationalism: Is Europe's complex diversity under threat?. *Ethnicities*, vol. 14 no. 1 pages 25-49.
- Coskun, N., & Yalcin, S. (2007). Gentrification in a globalising world. Case study. *Mimar Sinan Fine Arts University*.
- Czumalo, V. 2012. Architecture and identity. *Autoportret*, 1[36]: 47-52.
- de Kloet, J. (2014). Europe as facade. *European Journal of Cultural Studies*, vol. 17 no. 1 pages 58-74.
- Delheya, J. (2014). Measuring the Europeanization of everyday life: Three new indices and an empirical application. *European Societies*, volume 16, issue 3.
- Doorewaard, H., & Verschuren, P. (1995). Het ontwerpen van een onderzoek. *Utrecht: Lemma*.
- Drury, J. (2003). Transforming the boundaries of collective identity: from the 'local' anti-road campaign to 'global' resistance?. *Journal of Social, Cultural and Political Protest*, Volume 2, Issue 2.
- Eldemery, I.M. (2009). Globalization challenges in architecture. *Journal of Architectural and Planning Research*, 24:6.
- Ibrahim, H. J. A. (2013). Contemporary architecture through the concept of regionalism: a sustainable approach for Doha-Qatar. *International Journal of Sustainable Human Development*, 1(3), 94-103.
- Jones, (2011). Architecture and the nation: building an 'us', *The sociology of architecture*, Chapter 3
- Jones, P. (2011). The sociology of architecture: Constructing identities. *Liverpool: Liverpool Uni Press*, Chapter 3.
- King, A. D. (2004). Spaces of Global Cultures: Architecture, Urbanism, Identity. *Canada: Routledge*, pp 23-45.
- Kvale, S. (1996). Interviews An Introduction to Qualitative Research Interviewing. *Sage Publications. Thousand Oaks California*.
- Lamont, M., & Molnar, V. (2001). How blacks use consumption to shape their collective identity: evidence from marketing specialists. *Journal of consumer culture*, vol. 1 no. 1 pages 31-45.
- Larco, (2010). Both/And: merging Global and Local Identity through Design. A case study of Puerto madero. *Buenos Aires Journal of Urban Design*, volume 10.
- Lin, H., & Lee, W. (2012). Place identity for city sustainability in a traditional settlement of Taiwan, Globalization – Approaches to Diversity. *INTECH*, Chapter 11.
- Mahgoub, Y. 2007. Architecture and the expression of cultural identity in Kuwait. *The Journal of Architecture*. Volume 12 Number 2.
- Mbamali, I., & Okotie, A. J. (2012). An assessment of the threats and opportunities of globalization on building practice in Nigeria. *American International Journal of Contemporary Research*. Vol. 2 No. 4.
- McNeill, D., & Tewdwr-Jones, M. (2003). Architecture, Banal-Nationalism and Re-territorialization. *International Journal of Urban and Regional Research*, Vol.27:738-43.
- McDonald, K. (2002). From solidarity to fluidarity: social movements beyond 'collective identity' – the case of globalization conflicts. *Social Movement Studies: Journal of Social, Cultural and Political Protest*, Volume 1, Issue 2.
- Nijman, J. (1999). Cultural globalization and the identity of place: the reconstruction of Amsterdam. *Cultural Geographies*, 6:146.
- Pavlovski, M. (2013). Image, Europe, Drama. *Human Affairs*,

Volume 23, Issue 1, pages 56-65

Udaykumar, A. (2010). The response of Critical regionalism to contextual changes over time in South-east Asian Tropical residential architecture - A case study of Singapore. *Network for Comfort and Energy Use in Buildings*.

Wensen, G. (2012). Integration of historic fabric in new urban development – A Norwegian case-study. *Landscape and Urban Planning*, Volume 107. Issue 4. Pages 380–388.

# The impact of climate change on historic urban landscapes

N. Amali, A. Atsma, S.C. Huypers, F.G.A.P. Leenarts & G.A.M. Meussen

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** In 2011 UNESCO adopted the new Recommendation on the Historic Urban Landscape (HUL) as a way to recognize and position the historic city as a resource for the future. The HUL emphasizes the importance of identity and character for contiguous citizens based on both social and cultural values. The definition of the HUL raises the question of how various aspects like climate change, global market forces and a constantly growing population affects the preservation of our historic urban landscape. The environmental impacts addressed in this paper can be divided in direct impacts and indirect impacts.

This study investigates the ways in which the HUL is affected by climate change and how it is affected by the urban policies that react to it. The aim of this research will be to review and assess the state of the academic literature regarding the topic. Political authorities are using their influence to control decisions in the field of environment and climate issues. The outcomes of the decisions they make, can later negatively or positively impact on the deterioration of urban heritage. These negative or positive impacts will be affected by the wide range of different climate influences, altering the urban heritage.

The twenty-five literature sources are studied by means of applying a literature grid. These sources are selected and categorized into five different research methods. The methods found often used in this research field were respectively case studies, workshops, data analysis, global studies, and literature research. With these different methods it is possible to gain a broader perspective on the subject. In the literature grid categories related to our research question are used to sort out the information from the sources. The literature grid was designed to focus on concepts such as climate influences, materials, and urban policy. Results are expected to feed conclusions and discussion on how urban landscape is affected by climate change and how the urban policies react to it.

**KEYWORDS:** *Historic urban landscape, Climate change, UNESCO, Heritage, Urban policies*

## 1 INTRODUCTION

In 2005 hurricane Katrina wiped out the entire city of New Orleans in Louisiana, USA. Besides the enormous humanitarian crisis that followed, it also had major implications for the physical embodiment of the city. One of the oldest cities in the United States, well known for its architecture, has lost much of its many historic buildings and by that also its cultural habitat.

Katrina was one of the deadliest and third strongest hurricane in American history (Levitt, Whitaker, 2009). However due to global warming natural phenomena like Katrina are likely to become more

frequent and powerful in the future – not only in the United States but around the globe. The expected and already observed impacts of climate change include an “increase in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level” (“Climate change 2007, Impacts, Adaption and Vulnerability”, 2007). The consequences are extreme weather conditions such as extreme temperatures, heavy rainfall, flooding, storm surges, solar radiation and severe lightning. This poses a dire threat to human civilization and to all ecosystems in general.

In this research we focus on the impact it has on the historic urban landscape (HUL), one of the cornerstones of civilization. The Historic Urban Landscape is a fairly new term, decreed by UNESCO and

should be understood as “a historic layering of cultural and natural values, extending beyond the notion of ‘historic centre’ or ‘ensemble’ to include the broader urban context and its geographical setting”(UNESCO). Since the last decade there has been an increasing focus on threats posed by climate change to heritage. The heritage field responded with planning documents, policy statements and a growing body of research. The ‘NOAH’S ARK’ project and ‘Climate for Culture’ project have been the first initiatives by the European Union to view the long term need of science in relation to climate change and cultural heritage. The study presented here aims to contribute to this body of knowledge by critically assessing previous research by means of literature review. Hereby we distinguish three categories of impact: direct impact such as extreme rainfall or rising sea levels; indirect ‘adaptation’ impact i.e. measures responding to climate change such as building dikes; and indirect ‘mitigation’ impact i.e. measures to slow climate change like the usage of solar panels for generating renewable energy. Although these measures could benefit the HUL, they could also have a negative impact when they are poorly designed or not suitable for the historic built environment. This can be translated into four research themes: climate influences, vulnerability of materials, prevention, and (urban) management.

Because climate change is a worldwide phenomenon just as the notion of cultural heritage, despite major cultural differences, is also common for any society, we have not limited the research focus to any particular region in order to find a broader scope on the topic. Our aim is to research what the consequences are of climate change on the historic urban landscape and how it is affected by urban policies that react to it.

## 2 METHODOLOGY

This section of the report sets out the project methodology and provides information on the main study stages and the methods used.

### 2.1 Establishing focus

On the forehand the research topic was globally defined under the working title ‘Historic Urban Landscape’. By using the ‘funnel model’ an explorative and random literature research was carried out for determining the exact research topic as well as the research set up.

A very actual topic that only until recently has gotten any attention is the growing concern over the implications of climate change on the historic built environment. The major scientific research projects on this topic to date, are Engineering Historic Futures by the United Kingdom (2006), which focused on moisture related climate change, and Global Climate Change Impact on Built Heritage and Cultural Landscapes by the European Union (2007).

Further exploration of the literature narrowed our research scope by making a distinction between direct impact; indirect ‘adaptation’ impact i.e. measures responding to climate change; and indirect ‘mitigation’ impact i.e. measures to slow climate change.

### 2.2 Developing search strategies

By narrowing the research scope a broad methodology was made feasible. To minimize the risks associated with the collection and interpretation of observed evidence, a methodology is applied that offered access to a wide range of sources. By cross-checking the different types of data, data could be verified before being accepted as proof, which made the research more reliable.

In order to do this, five different research methods were selected in advance and papers found using it to explore this research field, qualitative as well as quantitative. The methods derived from an extensive literature search in which the literature was assessed and categorised into different groups. The quantity and quality of the sources resulted into the following methods: 1) case studies; 2) global studies; 3) literature research; 4) workshop research; 5) quantitative data research. Each group member was linked to one research method and critically assessed five articles. A total of twenty-five (25) literature sources were reviewed.

### 2.3 Data management

In order to critically analyse, compare and evaluate, the collected information was managed by means of a literature grid, developed by Peter Yacobucci (2012). The grid was constructed around issues of concern identified by the project team that related to the three categories of impact. Each resource has then been coded by importance and relevance. Once the grid was fully organised, similar evidence was sorted together and conflicting evidence was pointed out. The data which could be evidenced by the multiple research methods was accepted as the most valid. When conflicting data is found this can

be used for further investigation to investigate which source is right and how this conflicting data can occur.

### 3 RESULTS

#### 3.1 Literature research

The results of the literature research show that although the exact causes of climate change are not clear, apparent effects can be expected in next decennia in terms of increasing temperature, precipitation, sea level, wind and air (Kaslegard, 2011; Bunnik et al., 2010; Gruber, 2008; Girard, 2006; Colette et al., 2007). Resulting changes in these conditions will certainly affect the built environment on a structural, physical and chemical level, with moisture related threats being mentioned in particular. As response to climate change for persevering heritage, most sources distinguish adaptation measures - i.e. measures responding to climate change - and mitigation measures - i.e. measures to slow climate change (Kaslegard, 2011; Bunnik et al., 2010; Gruber, 2008; Colette et al., 2007). This results in a wide array of possible measures ranging from increased monitoring and maintenance (Gruber, 2008; Kaslegard, 2011; Colette et al., 2007) to fortifying measures (Gruber, 2008) to actually moving heritage structures (Gruber, 2008; Kaslegard, 2011). Although these various measures could benefit the HUL, they could also negatively affect the HUL when they are not suitable for the historic built environment. The impact these measures themselves have on heritage is discussed by Kaslegard (2011) and Girard (2006). While Kaslegard has a rather reticent attitude regarding mitigation measures and considers the use of renewable energy systems to be particularly harmful, Girard emphasizes strongly that heritage conservation must be part of renewable resources utilization strategy to "make urban heritage both more sustainable and more valuable" (p.4). However, it is hard to assess the impact of combining heritage conservation with renewable energy strategies since newly produced values are hard to compare with traditional values. Therefore further research would be necessary.

In the public management of cultural heritage, identification, mapping and documentation of vulnerable cultural heritage sites are mentioned as a basic requirement for implementing measures that can prevent damage and loss (Gruber, 2006; Kaslegard, 2011; Colette et al., 2007). The usage of cul-

tural heritage databases based on Geographic Information Systems (GIS) is mentioned to be important.

#### 3.2 Workshops

The workshops are reactions on the fact that the climate changes. In all the workshops they deal with this change and how to protect the HUL against this change. In four of the five sources the workshops and the results dealt with how to protect the heritage in a sustainable way and how to integrate this protection in the different layers of society. Veldpaus, L., & Pereira Roders, A. (2013) found out that sustainable preservation was well integrated in all layers of society. Robert, E., Pharès, J., & Sauvage, A. (2002), Carmosino, C. (2013) and Cassar, M. (2005) came up with different ways of how to do this in a right way. Robert, E., Pharès, J., & Sauvage, A. (2002) found out that 98% of the people recognize the value of heritage but do not see it as an integral part of their cultural identity. They state that this is why one of the central objectives in cultural heritage protection policies is to raise awareness among the people who are involved in heritage. Carmosino, C. (2013) came up with main policies that suit the findings of Carmosino, C. (2013). To reach all layers of society they introduced a bottom-up approach. When the preservation of the HUL starts on a local level with systems that have been devised on a national level, the people who live in the historic environment can be educated better on how to preserve the HUL in a sustainable way. Education is also seen as an important factor by Cassar, M. (2005). They state that a national plan is necessary to share knowledge between the different layers of society. All these measures need to be funded. Cassar, M. (2005) states that long term funding is especially needed for maintenance and that education is important. Drewniak, B., Chen, F., Jacob, R., & Catlett, C. (2013, August 27) investigated the possibilities of how to predict changes in human behavior that react on climate change and how this behavior effects the HUL. This investigation was not yet started so therefore they did not have good results yet. This subject has not been treated in the other sources.

#### 3.3 Global studies

The global studies analyzed in the literature grid provide information about urban supervising the climate change on cities. In the studies two final points highlighted the cause of this problem. First, for most urban centers, the problem is as much of a lack of local government competence and capacity.

The need to adapt is being forced on a mere national level that lacks the political and economic basis for adaptation, even if new funding is provided. Second, risks and vulnerabilities in all aspects of climate change are shaped by local contexts and they are much influenced by what local governments do or don't do. In the end almost all adaptation is local and to be effective it needs strong local knowledge and strong local adaptive capacity (Satterthwaite, 2007). International agencies consider that urban sustainability is moving towards a more human centered approach in which a landscape-based management seems to have strongest linkages between the fields of urban development and cultural heritage conservation (Guzman, 2014). Rather than being confined to policies and plans, governing climate change is taking place through different forms of experiments in the city. Through recognizing experimentation as a site of politics, we are therefore able to bring together insights from literature on global environmental governance with analyses. Forms of experimentation appear to be linked with specific contexts of urbanization and urbanism (Moss, 2009). Climate experiments are indeed important sites of urban politics, across a diverse range of cities. The different theoretical perspectives introduced above suggest that experiments may be able to contribute to new forms of political architecture, socio-technical regime change, or create new ideals for urban futures. Understanding this potential will be a critical task for future research in this area and may provide new insights for our understanding of the political geographies of climate change (Bulkeley, 2012). World-conjuring projects, for example the design of new eco-houses, attains qualities such as architectural engagements and seeks to compose new forms of climate-sensitive urban dwelling (Blok, 2014).

### 3.4 Data mining

The assessed literature with regard to data mining allow for several conclusions to be made. Brimblecombe (2014) limits his research to the period until the year 2100 and observes a temperature increase of 4 °C. While Brimblecombe (2014) makes notion of the increase in temperature he doesn't link this directly to consequences. The scope of Ren, Wang and Chen is also limited to the year 2100 although a clear prognosis on future temperature is omitted in their research. They do make the remark that "high energy efficient buildings are more sensitive to global warming" (Ren, Wang and Chen, 2013:5) and state that a "slight global warming of 1 °C causes insignificant increase in the energy consumption of

lower performing houses." They further state that "energy consumption will increase rapidly ... as temperatures rise more than 4 °C" (Ren, Wang and Chen, 2013:13). The research carried out by Marzeion and Levermann (2014) is confined to the 720 UNESCO sites near the coasts and furthermore bound to next 2000 years. They state that a temperature increase of 3 °C for the coming two millennia results in an impact of 136 sites due to sea level rise (Marzeion & Levermann, 2014:5). They further observe that 40 sites "will be impacted by SLR even without further temperature increase" (Marzeion & Levermann, 2014). Brimblecombe (2014) further notices an decrease in rainfall together with an increase in intensity and links this short, intense rainfall to an increment of corrosion of metal and a discoloration of stone. The two remaining sources rather focus on the employment of data systems than on the results and observe that "decision makers [must] have access to the relevant knowledge and data" (Smith et. al., 2009:1). This statement is joined by Van Westen (2005) stating that key for this to succeed is the collaboration of experts from different disciplines.

### 3.5 Case study

The case studies analyzed in the literature grid provide us information about different findings. The major part of the studies agree in their expectations that our sea levels will raise significantly in the near future (Augustin Colette 2007, Janardhanan Sundaresan 2013). The same sources do also expect a temperature raise and an increase in rainfall for the near future.

The expected change in climate factors will affect the balance between the amount of water (ice) stored in winter and the melting during summer. This will threaten the stocked drinking water, stored on many mountain tops, necessary for billions of people. As a result, people will die, and inequality will lead to wars (Augustin Colette 2007). Another remarkable result is that future trends in wind speeds have not yet been including in the building regulations (Steenbergen RDJM, Koster T, Geurts CPW 2012:55). These wind speeds are necessary to calculate the structure of buildings.

With regard to the air quality, predictions have been proposed. Caused by the global climate change, land will be used in different ways, changing our urban landscape. It is likely that the frequency of dust storms and their intensity will increase (Janardhanan Sundaresan 2013).

Climate change also affects a number of materials. Due to the increase in humidity, biological pests will advance in many parts on earth. These were formerly unknown in the certain areas. Such plagues can cause severe damage to timber structures and other organic building materials. (Augustin Colette 2007).

In the paper: 'Growth, world heritage and sustainable development: the case of Lijiang City, China', the idea is given to limit the physical traveling in the form of tourism and to switch to virtual visits, this with the intention not to inundate heritage and to reduce emissions.

Furthermore there is the idea of the 'climatic impact risk' in which there will be a high risk in areas where the most people are living. Anticipative design is a type of planning that reacts on this, that gives the ability to create a building, city, landscape or society that is able to adapt itself to the developing climate influences (Janardhanan Sundaresan 2013).

### 3.6 Combined results

Either case study as well as literature research and data mining induce an increment in sea level and except for case study these aforementioned sources agree on the threat to coastal areas as a result of this.

With regard to temperature prognosis these three methods again align with each other on the overall increment in temperature wherein literature research adds the possibility of desertification of certain areas and case study makes warning of the occurrence of large sandstorms. Both case study and data mining remark a risk of overheating due to this temperature increment. Case study however imputes this to the fact that many buildings only just meet the applicable standards whereas data mining states that high energy efficient buildings are more sensitive to a small increment in temperature. Case study and literature research furthermore make notion of an increased amounts of cracks in stone material as a result of the temperature increment.

With reference to precipitation both data mining and literature research remark an increment in intensity of precipitation. Case study however makes notion of an increment in total volume of precipitation while data mining specifically observes a slight decrease of this total volume. While literature research agrees with data mining on the increment in intensity this method provides no clear notion on the total volume of precipitation. While case study observes danger for floods and biological plagues, literature

research and data mining however warn for the impairment of building materials.

Global studies and workshops dealt both with how to manage the protection of the HUL. The two agreed that a national policy has to be made to adapt well to the impact of climate change. The main focus of this policy should be to raise awareness among the people who are involved with heritage. General education plans are proposed as a solution to take care of this problem. Another point both came up with was that funding is very important. The global studies introduce the use of experiments or interventions to contribute to new forms of political architecture, socio-technical regime change, or create new ideals for urban futures.

The literature and data research also advocate for the development of (GIS) databases as a basic requirement for implementing measures that can prevent damage and loss.

## 4 CONCLUSIONS

Considering how the different climate influences are involved in the change of our HUL, various conclusions can be stated. From the research it has become clear that changes can be expected in terms of temperature, sea level, precipitation, wind and air pollution which will have consequences for the built environment on a structural, physical and chemical level. In the first place the expected rise of the sea-level will threaten the HUL with floods. This climatic risk is strengthened in the second place by a temperature rise. In addition, temperature rise influences the risk of overheating the existing building stock, causing cracks in the construction and advance the desertification process. The desertification will urge the eroding process of the existing building stock. Another consequence of the temperature rise will be an increase of the energy consumption for cooling purposes of the building stock. In the third place it is expected that the amount of rainfall will increase, this will contribute to the sea level rise and causing floods of the HUL. Other possible consequences of the increase of rainfall that impact the HUL, are the accumulation of water or snow and corrosion of metal, that can cause collapsing of roofs. The discoloration of stone materials is also influenced by the amount of water that is absorbed, thus by the amount of rainfall. In general, water ingress causes hygric expansion and/or affects the durability of materials.

Strong winds and storm activity can also cause structural damage to buildings. In particular histori-

cal buildings, may have not been designed according to future load standards. Changes in climate therefore will have consequences for the overall safety. Strong winds may also cause more trees to be brought down which can cause damage to heritage sites. The disappearance of the monumental buildings and other valuable landscape elements will greatly change the appearance of the HUL. Air pollution is another thread that can damage the materials used in historical buildings or landscapes. The increase of acids polluted by the growing industries and car population will degrade stone materials like lime stones.

Because of the expectation of our changing climate, it is also expected that this will lead to future-proof design of the HUL. In particular, anticipative design gives the possibility to create a building, city, landscape or society that is able to adapt itself to the developing climate influences. Regarding the impact these measures themselves have on the HUL, the research does not provide a clear answer. What is considered to be extremely harmful by the one, is considered necessary by the other. It is hard to assess the impact of combining heritage conservation with renewable energy strategies, because newly produced values are hard to compare with traditional values. Therefore further research would be necessary.

The results of the global studies and workshops declare that the influence of climate change leads to local adaptations and these measures need to be funded. The general common intention in both the research methods is to raise the awareness of protecting the cultural heritage, with the use of correct policy. Both methodologies recommend a good national plan for educating and understanding this problem so in the future there will be possibilities to preserve the HUL in a mere sustainable way.

In addition to this, the results from the global studies propose the need of doing experimentation or interventions to create new ideas for the urban future.

At last it can be observed that diverse methodologies entail a different scope of research. It can be concluded that more factual methodologies such as data mining focus more on factual statements whereas for instance workshops focus more on judgements like public opinions.

## 5 RECOMMENDATIONS

With further research a national or global plan can be made on how to deal with climate change and the

effects on the historic urban landscape. The currently available data has to be validated with data from new research to ensure that the new policy embraces the right area. Further research may also commit to how the generation of alternative forms of energy can reduce the affect to the HUL. It is difficult to protect the expression of the heritage (by conservation) while placing renewable energy sources (like PV-panels), because newly produced values are hard to compare with traditional values.

Another research can be started to investigate how urban policies expect to prevent the existing building stock from overheating, or how to protect them from eroding in the future with the expected change of climate influences. Are there procedures how to resolve these problems and how about financing them?

Predictions with the currently available data for the future can be difficult because the world is more leaning towards renewable energy sources. Therefore new data has to be gathered and analysed to make the right statements that combine the impact of renewable energy sources on the historic urban heritage.

## ACKNOWLEDGEMENTS

We would like to thank dr. A.R. (Ana) Gomes Mendes M. Pereira Roders and ir. A. (Anne-Marie) Peters - van den Heuvel for supporting and contributing to our research paper. They learned us how to execute a structured research and write a scientific paper.

## REFERENCES

- Blok, A. (2014). Worlding cities through their climate projects? In B. Catterall (Ed.), *City: analysis of urban trends, culture, theory, policy, action* (January, pp. 269-286). doi:10.1080/13604813.2014.906715
- Brimblecombe, P. (2014). Refining climate change threats to heritage. In J. Berry (Ed.), *Journal of the Institute of Conservation* (undefined, pp. 85-93). doi:10.1080/19455224.2014.916226
- Bulkeley, H., & 'n Broto, V. C. (2013). Government by experiment? Global cities and the governing of climate change. In *Transactions of the Institute of British Geographers* (undefined, pp. 361-375). Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1475-5661.2012.00535.x/pdf>
- Bunnik, T., De Clercq, H., Hees, R. van, Schellen, H. & Schue

- remans, L. (2010). Effect of Climate Change on Built Heritage. *WTA-Publications*, p-34. Retrieved from <http://alexandria.tue.nl/openaccess/Metis235825.pdf>
- Carmosino, C. (2013). *World Heritage and Sustainable Development*. Paper presented at The contribution of the 40th anniversary of the World Heritage Convention. Retrieved from [whc.unesco.org/document/128767](http://whc.unesco.org/document/128767)
- Cassar, M. (2005). *Climate Change and the Historic Environment*. Retrieved from <http://www.english-heritage.org.uk/publications/climate-change-and-the-historic-environment/climate-change.pdf>
- Cassar, M., Young, C., Weighell, T., Sheppard, D., Bomhard, B., & Rosabal, P. (2007). *Climate Change and World Heritage*. Retrieved from [http://whc.unesco.org/documents/publi\\_wh\\_papers\\_22\\_en.pdf](http://whc.unesco.org/documents/publi_wh_papers_22_en.pdf)
- Climate change 2007, Impacts, Adaption and Vulnerability. (2007, December 01). Retrieved from [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/mains1.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/mains1.html)
- Colette, A. (2007). *Case studies on climate change and world heritage*. Retrieved from [whc.unesco.org/document/106621](http://whc.unesco.org/document/106621)
- Colette, A. et al (2007). *Climate Change and World Heritage*, Report on predicting and managing the impacts of climate change on World Heritage and Strategy to assist States Parties to implement appropriate management responses. World Heritage Reports no. 22. Paris: UNESCO WHC
- Corfee-Morlot, J., Kamal-Chaoui, L., Donovan, M. G., Cochran, I., Robert, A., & Teasdale, P. J. (2009). *Cities, Climate Change and Multilevel Governance*. Paper presented at OECD Environmental Working Papers N° 14. Retrieved from <http://www.oecd.org/governance/regional-policy/44232263.pdf>
- Drewniak, B., Chen, F., Jacob, R., & Catlett, C. (2013, August 27). Urban Landscapes and Climate Change: Workshop Report [Video file]. Retrieved from <http://atmos.anl.gov/urbanworkshop/index.html>
- Girard, L. F. (2006). *Innovative strategies for urban heritage conservation. Sustainable development, and renewable energy*. vol. 2, p. 1-8. Retrieved from <http://www.globalurban.org/GUDMag06Vol2Iss1/Fusco%20Girard.htm>
- Gruber, S. (2008). *The Impact of Climate Change on Cultural Heritage Sites: Environmental Law and Adaptation* (Legal Studies Research Paper No. 08/117). *Carbon and Climate Law Review* 209-219. Retrieved from <http://ssrn.com/abstract=1285741>
- Guzmán, P. C., Pereira Roders, A. R., & Colenbrander, B. J. F. (2014). *Bridging the gap between urban development and cultural heritage protection*. Paper presented at 34th Annual Conference of the International Association for Impact Assessment, Viña del Mar, Chile. Retrieved from <http://www.iaia.org/conferences/iaia14/IAIA14-final-papers/Guzman,%20P.C.%20Bridging%20the%20gap%20between%20urban%20development%20and%20cultural%20heritage%20protection.pdf>
- Kaslegard, A. (2010). *Climate Change and Cultural Heritage in the Nordic Countries*. Copenhagen, Denmark: Norden.
- Levitt, J. I., & Whitaker, M. C. (2009). *Hurricane Katrina*. Lincoln, USA: Nebraska Press.
- Marzeion, B., & Levermann, A. (2014). *Loss of cultural world heritage and currently inhabited places to sea-level rise*. Retrieved from <http://iopscience.iop.org/1748-9326/9/3/034001/article>
- Opschoor, H., & Tang, L. (2011). Growth, world heritage and sustainable development: the case of Lijiang City, China. In *International Journal of Sustainable Development & World Ecology* (pp. 469-473). doi:10.1080/13504509.2011.604680
- Ren, Z., Wang, X., & Chen, D. (2013). Climate Change Impacts on Housing Energy Consumption and its Adaptation Pathways. In A. Khare, & T. Beckman (Eds.), *Mitigating Climate Change* (pp. 207-221). New York, USA: Springer.
- Robert, E., Pharès, J., & Sauvage, A. (2002). Discussion Highlights. In *Partnerships for World Heritage Cities* (January, pp. 85-97). Retrieved from [http://whc.unesco.org/documents/publi\\_wh\\_papers\\_09\\_en.pdf](http://whc.unesco.org/documents/publi_wh_papers_09_en.pdf)
- Satterthwaite, D., Huq, S., Pelling, M., Reid, H., & Lankao, P. R. (2007). *Adapting to Climate Change in Urban Areas*. Paper presented at International Institute for Environment and Development. Retrieved from <http://pubs.iied.org/pdfs/10549IIED.pdf>
- Smith, C. L., Lindley, S. J., Levermore, G. J., & Lee, S. E. (2009). *a gis-based decision support tool for urban climate risk analysis and exploration of adaptation options, with respect to urban thermal environments*. Paper presented at The seventh International Conference on Urban Climate, Yokohama, Japan. Retrieved from [http://www.ide.titech.ac.jp/~icuc7/extended\\_abstracts/pdf/375805-1-090514233750-003.pdf](http://www.ide.titech.ac.jp/~icuc7/extended_abstracts/pdf/375805-1-090514233750-003.pdf)
- Sundaresan, J., Santosh, K. M., Déri, A., Roggema, R., & Singh, R. (2014). *Geospatial Technologies and Climate Change*. Retrieved from <http://www.springer.com/earth+sciences+and+geography/earth+system+sciences/book/978-3-319-01688-7>
- Veldpaus, L., & Pereira Roders, A. (2013). *Amsterdam as a Historic Urban Landscape*. Paper presented at International Sustainable Development Research Conference (ISDR19), Stellenbosch, South Africa. Retrieved from <http://purl.tue.nl/1239636115859205.pdf>
- Wedeburn, O., Colla, C., Dahl, T., & Franzen, C. (2013). *analysis of built heritage - energy and culture*. Paper presented at 3rd European Workshop on Cultural Heritage Preservation, EWCHP 2013, Bozen, Italy. Retrieved from [http://www.3encult.eu/en/deliverables/Documents/EWCHP\\_2013\\_33.pdf](http://www.3encult.eu/en/deliverables/Documents/EWCHP_2013_33.pdf)
- Van Westen, C. (2005). *Geoinformation Science and Earth*

*Observation for municipal risk management; The SLARIM project.* Retrieved from <http://www.itc.nl/PDF/Organisation/UNU%20DGIM/SLARIM/PaperSLARIM.pdf>

De Wilde, P., & Coley, D. (2012). The implications of a changing climate for buildings. In Q. Chen (Ed.), *Building and Environment* (pp. 1-7). Retrieved from <http://www.sciencedirect.com/science/article/pii/S0360132312001060>

# Industrial Canal- and Waterfront Transformation & Cultural Change

K. van Kesteren, T. van der Steen, E. Linder, C. Laatst

*Architecture, Eindhoven University of Technology, the Netherlands*

P. Pustelnik

*Architecture and Urban Planning, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Throughout history the canal has been an important type of infrastructure. Certain sites and cities developed alongside the canals, mostly for industrial purposes. Overtime this way of transportation got outdated when faster ways of transportations such as trains, trucks and cars became available. With the loss of the original function of the canal many industries moved and adapted to other transportation systems, leaving a lot of sites abandoned as pieces of history. What happens with these sites?

These sites are undergoing a lot of transformation and many of them are objects for redevelopment. Our aim and objective is to see how this transformation changed the culture, or in other words changed the experience for the people who live there. For example, some people see this area as a function of the past, what happens if the site is redeveloped? How does the culture change, will the site be perceived as a historical landmark or as a new upcoming area? Which features are important for the heritage and which aren't?

This paper uses five different methodologies (comparative analysis(1), interview and survey(2), case study based on one site, mapping, GIS, quantitative research(3), literature review(4) and case study focused on design rules) to explore this contemporary topic. After clarifying these methods in general, each of them will, first, describe their specific findings regarding the canal and waterfront transformations and, secondly, briefly note their relevance for this topic from a methodological perspective. Afterwards, some conclusions will be made regarding the second aim of this paper, namely to identify which methods should be applied to research these industrial canal- and waterfront transformations in relation to cultural change.

**KEYWORDS:** *Heritage, Canal waterfronts, Industrial waterfronts, Transformation, Culture*

## 1 INTRODUCTION

The transformation of canal- and urban waterfronts recently is becoming more and more an important issue in post-industrial areas of the city. The canal has through the history been the economic backbone of regions by connection areas of production to the urban markets. With the closing of many industrial sites it was left abandoned or gained a different use with the result that the canal and other waterfront areas had no longer a real use other than their visual attraction.

Containing a rich industrial history, the sites are progressively being developed and given a new use for the city and its citizens. The impact of these developments are noticeable not only at sites of national importance, but also in local areas, where

small changes can be very significant. These changes can totally change the character of the area and its perception. Cultural heritage is connected with the history as well as with a memory of the place. That being considered, industrial heritage is an integral part of our culture and should be dealt with accurately and with well-advised reasons, especially when redesigned.

In many cases which recreate waterfronts, redevelopment plans tend to copy successful planning models and ignore the characteristics that make the site of destination most appealing: it's social and economic heritage, unique natural features and the architectural remnants or earlier eras. New projects of development should not only focus on maximizing return on investment or emphasizing economies; it for instance may well be the case that the design is not successful for a longer period of time for reason

which defer from socio-economic reasons to simply bad designing.

Transformations of canal- and waterfronts is not about a historical site which potentially can lose its historical value, but (if redesigned properly) much more an opportunity for the future of the region or city in question. It opens possibilities for economic growth, real estate development, new cultural functions, working places etc. Uniqueness and authenticity of these former industrial areas which lie hidden in the area's heritage are the key factors in attracting both employees and residents as well as tourists to a place.

### 1.1 *Grounds and reasons for the research*

What happens with canal- and urban waterfront sites after a transformation and what role culture plays there (if any) was very interesting to us. The authors of this paper are five students doing the same master project – Water and Canal Waterfronts, where the Haarlemmertrekvaart in Amsterdam along the Westergasfabriek is investigated. This site is transformed from a former industrial site to a site where culture plays the main role. Therefore this transformation had a big impact on the cultural life of the city and also in terms of the use and preservation of the heritage of the industrial site. The research on Haarlemmertrekvaart – its history and actual situation has triggered the curiosity in authors for further investigation on the topic of transformation of waterfronts. Having started the course of Methodology in architectural history and theory with the topic of master project still in mind, the research question started to visualize. It was interesting to find out if there are a lot of other cases like Haarlemmertrekvaart and then by using literature research on the different methods see if they give the same image of the change in culture, or perhaps give very different approaches to the transformation of the industrial canal sites and urban waterfronts. Considering the interest driven from Haarlemmertrekvaart in Amsterdam this paper intends to investigate and answer the question: *With the loss of the original function of industrial canal sites and urban waterfront how are these sites transformed and what does this mean for the change of the culture?*

### 1.2 *Aims of this paper*

Within this context the aim of the research is on one hand to explore different research methods and how useful they may be in different types of studies; find new research methods that could be useful in other

projects, and on the other hand aim to find out more about different industrial waterfronts in different places.

In order to be able to compare the different sites and classify the sources some questions had to be asked and answered. The questions were divided into two groups. One strictly about facts concerning the papers author and publisher to get a picture of what aim they had to publish the source and one strictly about the content of the source. To be able to do this we asked the following questions for every source.

#### **-Facts**

Who is the author?

Where was it published?

What methods did they use?

When was the transformation done?

Where is it located?

What type of waterfront is it?

Was the research done before or after change?

#### **-Content:**

How did the transformation change the culture?

What is the function of the site?

What role does heritage play in the site?

Is the history still in place or forgotten about?

Are the people involved Positive or negative towards the transformation, in terms of culture?

Since the field of investigation in canal and urban waterfronts and their transformation can be rather broad, there are various types of methodologies that can be used to research the various aspects like culture or heritage. Five research methods were chosen, which consider comparative analysis; interview and survey; case study - based on one site, mapping, GIS, quantitative research; literature study / -review; case study focused on design rules will be evaluated for their use and value in relation to the research on *Industrial Canal- and Waterfront Transformation & Cultural Change*. Every method will give different insights into the topic and will have its own strengths and weaknesses. In this article the different methods will be described regarding the topic.

## 2 METHODOLOGY

The research on this paper have started with a very specific topic, but during progress of work it turned out to be too specific to find good sources following different methods. First of all, all the literature was gathered mostly using Scopus and Google Scholar, but also in the resources of Library of University of Technology in Eindhoven. In the literature grid the literature was divided into the methods and after-

wards each author followed only one method for further investigation. Case study turned out to be a very broad and useful topic that could be divided into smaller categories. After reviewing all the sources for particular method each author came out with questions that were used for next step of literature grid, which helped with analyzing the method and coming to the conclusion answering the research question. Every author had at least five sources, which were placed on a world map according to the location of the transformation it was describing, in order to see where the transformation of canal and urban waterfronts plays an important role and is being developed. This map helped with further conclusions.

To qualify for a certain research method the articles or books had to fit into the following definitions:

### 2.1 *Comparative analysis*

Comparative analysis consists of comparing two or more cases to see why the similarities and differences between cases exist. The strength of this method is that it is possible to add explanatory variables and its weakness is that it requires that the different cases can be measured in the same way, so the analysis should ideally be done according to a common framework.(Pickvance, 2005.)

### 2.2 *Interview and Survey*

These research-methods consist of asking questions to people who are somehow related to the subject. An interview is usually held face to face with one person whereas a survey usually includes a larger group of people. Advantages with this method is that people get to express themselves with their own words and that you get a different point of view of the subject with each person. The method can however be too flexible and it may be hard to get a conclusion from a lot of different answers.

### 2.3 *Case study - based on one site, mapping, GIS, quantitative research*

Case study research is one of several forms of social science research. Others include experiments, surveys, histories, and archival analyses such as economic or statistical modelling. Doing case study research would be the preferred method, compared to the others, in situations when the main research questions are “how” or “why” questions.

(Case Study Research: Design and Methods Robert K. Yin)

### 2.4 *Literature study / -review*

A literature review is an assessment of a body of research that addresses a research question.

The purpose of a literature review is to identify what is already known about the specific area in question. This method can also be used to identify questions which the body of research does not answer, to make a case for why further study of research questions is important to a field.(Harvard Graduate School of Education Library, 2011-2012)

### 2.5 *Case study focused on design rules*

Case study focused on design principles is a form of investigation which in our case first tries to answer the “why” question about the projects that have been already done. Tries to answer why where they designed that way not another and find their strong and weak points. And afterwards it investigates the “how” part – how should the new projects be done so they are being successful.

## 3 RESULTS

### 3.1 *Comparative analysis*

In the article of Giovinazzi, multiple international cities have been examined over 20 years to do a comparative analyses and with the results make a list of 10 principles for the development of urban waterfronts.

In the article of Fulton two sites are compared. Interesting in this comparative analysis is the fact that the cases are very close to each other and are directly connected by the water. Also one case is still in transformation while the other is already transformed.

The book of Curulli focuses on the B5 in the Netherlands. Through research on the sites designs are created for all the sites to attribute to international knowledge on this topic and also to act as an eye-opener for the transformation of industrial canal waterfront cities.

In the article of Yu three Asian cities are compared to examine the spatial transformation and point out the problems they encounter. In this comparative analyses it becomes clear that these cities have a similar way of development. The article is focusing on the problems of the ongoing transfor-

mation while the other articles are mainly focusing on success factors.

The article of Jelovac uses international cases and sources and compares them to understand the success factors of those sites. After these are put to use in the research of the case studies is Montenegro. Interesting is that Jelovac uses also the article of Giovinazzi and with his comparative case study on different sites he agrees with Giovinazzi and gives the 10 principles more authority.

From this research method it could be stated that it is easy to use because it enables you to set the criteria for the research and test them. However this is also the biggest threat in this method since it suggests also a certain subjectivity. To guaranty as much objectivity in the results as possible, it is of great importance that the cases are being compared on aspects that have been established in advance and exist in a common context.

### 3.2 Interview/survey

The paper of Doucet, shows that by giving the site new functions, problems such as criminal activity and poor hygiene was reduced. However a lot of the inhabitants had to move due to higher rents. A lot of people are disappointed in the development and are worried that they also have to move. They are also worried that the heritage will be forgotten with the new development.

The theme for this new site used in Dalman's paper was sustainability and the focus in these interviews is if the architects were successful in achieving the goals or not. Most of the interviews and the conclusion of the paper is in reference to the dwelling itself.

The site used in the paper of Tucker et.al. is the same as in the previous paper. A survey is conducted and questions are asked about the public spaces in the area. The people liked the area but two main issues were noted. The area is not very available for others than the residents and the history of the site is completely removed.

Flagships have been built in the area discussed by Doucet et.al. This has led to destruction of existing dwelling and gentrification. Some people who were interviewed liked the change because the area has had many problems such as out-dated houses and high crime rate. Others did not like the gentrification.

Haarlemtrekvaart research by Curulli used to be a dangerous forest with a lot of criminals. With the upcoming change with offices and so on the area changed. It is safer and the nature is still there.

However the nature is threatened by the city of Amsterdam wanting to density the area even more.

Through this method it becomes clear what people are most concerned about. However this leads to other aspects getting less attention. In these cases culture is not the most important aspect. Another important aspect is the difference in answers depending on the interviewee. As in the case of Malmö where the focus was completely different between the architects and the survey for students. To get different points of view may be an advantage but is also difficult to get an objective overview of the issue and make a conclusion.

### 3.3 Case study - based on one site, mapping, GIS, quantitative research

The paper of A. Gospodini, examines urban waterfront redevelopment in Greek cities, regarding them as a group of cities rather than focusing on each case independently. It attempts to set up a theoretical framework for the redesign of space. The paper argues that in the competitive European urban system, urban waterfront redevelopment is a challenge for Greek cities.

The article of D. Schubert focusses on the new urban development concept of Hamburg, called the Spatial Vision of Hamburg. The most important aim of the plan reads "More city in the city". With this demand, Hamburg consistently gives priority to higher densities, infill, and sustainable spatial development.

In the article of X.U. Hao and W.U. Wei, ArcGIS, quantitative analysis was used in the landscape planning of waterfront district of the Guyang Lake. This paper introduces a case study of landscape planning in Guyang Lake by taking advantage of GIS technology. This study proved thus highly integrated GIS system is very effective platform in process of data acquisition and analysis so it can be a useful tool for canal waterfront transformation.

The article of Vu Thi Hong Hanh is mainly about the rapid industrialization and modernization occurring in HCMC. Urban cultural conservation has been a minor concern of Vietnamese government and local committee, according to Hanh. The author aims for conserving and improving the unique canal systems of Ho Chi Minh City.

The aim of this paper by Gravagnuolo et al, is to assess the strength and weakness factors of post-industrial cities located in the Gulf of Naples in order to propose the most effective regeneration strategies towards a sustainable development of the urban coastline. This paper focuses on the city of Torre Annunziata and in particular on its industrial port area and waterfront.

As seen in the previous articles, the method of case studies can get various point of views. Also it is very depends on the location whether cultural is completely neglected or forgotten about. Therefore it is hard to get an objective, reliable and valid overall conclusion.

### 3.4 Paper / literature review

Focusing on contemporary literature regarding the topic of this paper, there continues to be an instinctual need to be near water. It is this instinctual need that is being capitalized on in the post industrial economy. In this account, water transcended from being used as tool not to *use* but rather as a tool be *admired*, like a piece of art. (Buckman, May 2013). However, with the ongoing urbanization of our population, natural ‘artworks’ e.g. waterfronts are becoming rare. To minimize this growing divide between self and environment Mabel et. al. recommend the implementation of *physical realization*, *virtual realization*, *motivating change* within urban development projects and daily life activities. (Mabel, Lehmann, & Sivam, 2013).

Driven by our natural attraction to water, *culture* has become an important theme responding to the socio-economic decline that waterfronts have been facing the past decades. Slocum and Clifton show us that *community capacity*<sup>1</sup> e.g. is a vital element of sustainable tourism development (Slocum & Clifton, 2012). Through assessment of various community capacity components<sup>2</sup> one can identify where there are still opportunities regarding canal development projects. Nevertheless, for a long time in waterfront regeneration literature there has been skepticism regarding the replacement of old industrial functions with post-industrial spaces of consumption, often creating privatized spaces and commodified cultures which exclude this social milieu and local communities (Gunay & Dokmeci, 2011). The *culture-led approach* has been criticized in the sense that despite the strong emphasis on social impacts to address social inclusion and quality of life during recent years, the key goals have also increasingly been defined in economic (Evans, 2005; Garcia, 2004; Moore, 2008) and the unbalanced relationship between economic and cultural priorities in urban policy (Urry (2002),

Garcia (2004) and Moore (2008). An additional problem is the complexity of any post-industrial redevelopment project which is making post-industrial redevelopment difficult to accomplish. There is a clear lack of a more systematic and theoretically fruitful methodology that incorporates both economic, socio-cultural and environmental aspects, public needs and will, and the knowledge about local characteristics, effects and impacts of post-industrial landscape transformation projects (Loures, 2015).

From a methodological perspective, conducting a literature study concerning the topic of this paper resulted in various insides. With this method we could identify several experts regarding the (re)development of canals and their waterfronts (heritage) sites which can be useful for future research. Secondly, there is a clear dominant role for the *case-study* and *comparative analyses* method within this field of research. Since every design or development is context based and thus resulting in different economic and/or socio-cultural results. Insights into these case-studies therefore naturally very helpful as a researcher.

### 3.5 Case study focused on design rules

Case study focused on design rules is done by professionals such as architects and urban planners. Below are shown their approaches to the topic of industrial waterfronts:

The author of the paper “Industrial Heritage: The past in the future of the city” sees the importance of culture and history in the transformation of the waterfront of Arade River. He is not only putting the priority for the ecological aspect of industrial sites redevelopment, but he also thinks that it is important to protect the industrial landscape

Z. Gunay and V. Dokmeci are analysing the waterfronts of Golden Horn and they agreed with the importance of culture in industrial sites redevelopment, however they notice that in analysed areas this transformation was not always done in appropriate way.

The article of Gravagnuolo is shows that history and culture are not important aspects in post-industrial sites. The author thinks that it is only important in an aesthetic way to be used for different aspects.

The thesis of J. O. Spector is taking a look at different waterfronts to find out the right design principles reconsidering many aspects. Spector is being

<sup>1</sup> *Community capacity* can be defined as the cultivation and use of transferable knowledge, skills and resources that affect community and individual level changes. This definition includes community participation and leadership, skills, resources, social and inter-organisational networks, sense of community, understanding of community history, community power, and community values needed to succeed in tourism development. (Goodman, et al., 1998)

<sup>2</sup> Slocum and Clifton adapted this from Chaskin (2001a) and (Goodman, et al., 1998)

positive about culture in transformation of waterfronts.

L. Loures finds the post-industrial areas as crucial for creating a local identity, therefore he thinks that heritage in those areas should be kept and used as much as possible. It is not only connected with history, but also with a memory of the place.

Case study focused on design principles seems to play a very important role in understanding the importance of culture in industrial waterfronts. Gives a possibility to truly understand where should be the focus putted while thinking of the new transformation. The weakness that can be found in this method could be the fact that it can be very subjective, dependent from authors opinion. However I think that learning from others that already did a lot of work and research on our topic is the best way. We cannot discover the world again alone. Therefore I think for our topic the described method seems to be very suitable.

#### 4 CONCLUSIONS

A broad topic of 'Industrial Canal- and Waterfront Transformation & Cultural Change' can only be fully analyzed and understood by comparing different methods of research. Case-study research e.g. remains very helpful in design or redesign projects. Since every design context is different due to social, cultural, economic and historical background, a general set of design rules for every specific development project of industrial canal- and waterfront sites does not exist. However, one can still learn from other projects by searching for similarities and objectives which are especially present by constructing a comparative research.

Interviews and survey are often not implemented when redeveloping sites. However, as we have seen they can give very useful and specific information. Though redevelopment often means economic growth, it also can reduce the social coherence since residents are sometimes forced to leave the region due to these economic development. These types of information are often neglected in other, less individual based methodologies.

In general, the industrial canal- and waterfront redevelopment has a positive effect on the canal or waterfront itself. Though the canal or waterfront sites lost their industrial function, these sites are now appreciated for their other unique qualities, such as their unique architectural style of urban layout.

In terms of cultural change, there is often spoken in economic terms as economic growth, more visitors or increased land value etc. Reasons for this seem to lie in the fact that terms can be easily measured, in contrast with other relevant terms such as people's appreciation of the site or their behavioral changes. These aspects can we better measured using interview techniques for example, of which we can conclude that this methodology is a unique technique to measure these types of personal cultural changes.

Using the literature review gave us the important insight that there still is a lack of a systematic and theoretical methodology for transforming these industrial sites which we think is very concerning for future transformations and designs related to industrial heritage. To include the local communities and their opinions can be very useful to not only get better insight in how these sites should be transformed but also can result in a different language then the economical when we speak of industrial transformations. These sites have given up their former production related language, and so should we. Let us focus on the culture in a broader sense then in economic terms. Here lies an opportunity in further research.

Furthermore we have learned that industrial are highly complex projects which need to be dealt with caution. Using different research methods seems and necessarily tool to get the best result for ourselves as designers, but also for the user of the design. It helps to understand the local context in all its cultural facilities and can make the designers better designers and helps municipalities in further projects.

#### ACKNOWLEDGEMENTS

In the first place, we want to express our gratitude to dr. Pereira Roders whose helpful guidance, suggestions and constructive criticism have contributed a great part in the evolution of the quality our paper. Furthermore, we acknowledge with thanks dr.ir. G.I. Curulli for her advice regarding our research to useful sources and chosen methodologies.

#### REFERENCES

- Abrahamse, J.E., Kosian, M. & Schmitz, E. (2010). *Tussen Haarlemmerpoort en Halfweg, Historische Atlas van de Brettenzone in Amsterdam*. Thoth, Bussum
- Buckman, S. T. (May 2013). Canal Oriented Development as an Urban Waterfront Development Mechanism. *Phoenix: Arizona State University*. Retrieved November 28, 2014

- Curulli, I. (2012). Industrial Canal Waterfronts in the Netherlands, Transforming the Canal Zones of B5. *Alinea Editrice s.r.l, Firenze*.
- Chen Yu (2009), Transformation Of Waterfront Space In Asian Cities: Macau, Hong Kong, Shanghai. *The 4th International Conference of the International Forum on Urbanism (IFoU), Amsterdam/Delft*, Retrieved on 28 November 2014, from: [http://newurbanquestion.ifou.org/proceedings/5%20The%20Transformation%20of%20Urban%20Form/full%20papers/D008\\_Chen\\_Yu\\_TransformationWaterfront.pdf](http://newurbanquestion.ifou.org/proceedings/5%20The%20Transformation%20of%20Urban%20Form/full%20papers/D008_Chen_Yu_TransformationWaterfront.pdf)
- Dockyard to Esplanade: Leveraging Industrial Heritage in Waterfront Redevelopment. *University of Pennsylvania*, Retrieved on 25 November 2014 from: [http://repository.upenn.edu/cgi/viewcontent.cgi?article=1152&context=hp\\_theses](http://repository.upenn.edu/cgi/viewcontent.cgi?article=1152&context=hp_theses)
- Dalman, E. (2003). ARKITEKTER OCH HÅLLBARHET intervjuundersökning om Bo01. Retrived on 30 of November 2014, from: <http://malmo.se/Stadsplanering>
- Doucet, B (2009) Living through gentrification: subjective experiences of local, non-gentrifying residents in Leith, Edinburgh. *Journal of Housing and the Built Environment*, 24, 299-315. Copyright © Springer.
- Doucet, B., van Kempen, R., & van Weesep, J. (2010). 'We're a rich city with poor people:' state strategies of new-build gentrification in Rotterdam and Glasgow. *Environment and Planning A*, volume: 43 (2011), pp. 1438 – 1454, Publisher: Pion.
- Fulton, A. (2011) 'Industrial Evolution: A comparative case study of the transformation from industry to leisure in the ports of San Francisco and Oakland, California'. *Inquiry*, volume 12, 2011, p 3-14. Retrieved on 28 December 2014 from: <http://inquiry.uark.edu/issues/v12/2011a03.pdf>
- Gravagnuolo, A., Angrisano, M. (2013), Assessment of Urban Attractiveness of Port Cities in Southern Italy—A Case Study of Torre Annunziata, University of Naples Retrieved on 28 November 2014 from: <http://www.mdpi.com/2071-1050/5/9/3906>
- Giovinazzi, O., Moretti, M. (2010). Port Cities and Urban Waterfront: Transformations and Opportunities. *TeMaLab journal of Mobility, Land Use and Environment*, Vol 3 - SP - March 2010 (57 – 64). Retrieved on 28 November 2014, from: <http://www.camerablunina.it/index.php/tema/article/view/urn%3Aanbn%3Ait%3Aunina-3515/125>
- Gospodini A. (2001), Urban Waterfront Redevelopment in Greek Cities: A Framework for Redesigning Space, Department of Planning and Regional Development, University of Thessaly, *Pedion Areos*, 38334 Volos, Greece. Retrieved on 28 November 2014, from: <http://www.sciencedirect.com/science/article/pii/S0264275101000221#>
- Hao X.U. (2013), The Application of GIS to Study Urban Waterfront District Planning - A Case Study of Landscape Planning in Guyang Lake, Retrieved on 28 November 2014, from: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6493929>
- Jelovac, S.R. (2013). Towards sustainable Waterfront transformation: through the Mediterranean to Montenegro. (Brebba, C.A.) *Sustainable Development and Planning VI. WIT Press, Southampton*. Retrieved on 28 November 2014, from: <http://books.google.nl/books?hl=nl&lr=&id=jQT6UqHE28C&oi=fnd&pg=PA37&dq=canal+waterfront+transformation+heritage&ots=yPJKDrvZ5O&sig=kw9e2jSc2cpxyLHq4G41JvJnPDs#v=onepage&q&f=false>
- KOÇI, V. (2005). SPATIAL TRANSFORMATIONS OF THE WATERFRONT – AS AN URBAN FRONTIER CASE STUDY: DURRËS A PORT CITY. *MIDDLE EAST TECHNICAL UNIVERSITY, Ankara*. Retrieved on 28 November 2014, from: <http://etd.lib.metu.edu.tr/upload/12606762/index.pdf>
- Loures, L. (2008). Industrial Heritage: The past in the future of the city. *University of Algarve*. Retrieved on 20 November 2014 from: <http://www.wseas.us/elibrary/transactions/environment/2008/27-696.pdf>
- Loures, L. (2008). Post- Industrial Landscapes: dereliction or heritage? *University of Algarve*. Retrieved on 26 November 2014 from: <http://www.wseas.us/elibrary/conferences/2008/algarve/LA/03-588-206.pdf>
- Mabel, J., Lehmann, S., & Sivam, A. (2013, July 16). The Sustainable Design and Renewal of Water's Edge Public Spaces in the Asia-Pacific Region: Sydney, Hong Kong and Singapore. *Journal of Sustainable Development*, Vol.6 no.8.
- Schubert, D. (2014), Three Contrasting Approaches To Urban Redevelopment And Waterfront Transformations In Hamburg: "String Of Pearls", Retrieved on 28 November 2014 from: [https://www.hcu-hamburg.de/en/master/urban-planning/arbeitsgebiete/dirk-schubert/news/?no\\_cache=1&cid=81455&did=13757&sechash=2cd4b27c](https://www.hcu-hamburg.de/en/master/urban-planning/arbeitsgebiete/dirk-schubert/news/?no_cache=1&cid=81455&did=13757&sechash=2cd4b27c)
- Spector, O. J. (2010) From
- Tucker, L., Küller C., Küller, R (2003). UTVÄRDERING AV STADSRUM Bo01 i Malmö. Retrived on 30 of November 2014, from: <http://malmo.se/Stadsplanering>
- Gravagnuolo, A., & Angrisano, M. (2013). Assessment of Urban Attractiveness of Port Cities in Southern Italy – A Case Study of Torre Annunziata. *Univeristy of Naples*, Retrieved on 25 November 2014 from: <http://www.mdpi.com/2071-1050/5/9/3906>
- Gunay, Z., Dokmeci, V. (2011) Culture-led regeneration of Istanbul waterfront: Golden Horn Cultural Valley Project. *Istanbul Technical University*, Retrieved on 25 November 2014 from: <http://www.scopus.com/dianus.lib.tue.nl/record/display.url?eid=2-s2.0-84860462093&origin=resultslist&sort=plf-f&src=s&stl=Culture->

[led+regeneration+of+Istanbul+waterfront%3a+Golden+Horn+Cultural+Valley+Project&sid=007BB53C243018699814FCI7CBD0384F.WXhD7YyTQ6A7Pvk9AlA%3a220&sot=b&sdt=b&sl=99&s=TITLE-ABS-KEY%28Culture-led+regeneration+of+Istanbul+waterfront%3a+Golden+Horn+Cultural+Valley+Project%29&relpos=0&relpos=0&citeCnt=3&searchTerm=TITLE-ABS-KEY%28Culture-led+regeneration+of+Istanbul+waterfront%3a+Golden+Horn+Cultural+Valley+Project%29](http://www.researchgate.net/publication/22818699814_FCI7CBD0384F.WXhD7YyTQ6A7Pvk9AlA%3a220&sot=b&sdt=b&sl=99&s=TITLE-ABS-KEY%28Culture-led+regeneration+of+Istanbul+waterfront%3a+Golden+Horn+Cultural+Valley+Project%29&relpos=0&relpos=0&citeCnt=3&searchTerm=TITLE-ABS-KEY%28Culture-led+regeneration+of+Istanbul+waterfront%3a+Golden+Horn+Cultural+Valley+Project%29)

Pickvance, C. (2005). 'The four varieties of comparative analysis: the case of environmental regulation'. Conference on Small and large-N comparative solutions, *University of Sussex*, 22-23 September 2005. Retrieved on 28 December 2014 from: <http://eprints.ncrm.ac.uk/57/1/chrispickvance.pdf>

Vu Thi Hong Hanh (2006), Canal-side highway in Ho Chi Minh City (HCMC), Vietnam - Issues of urban cultural conservation and tourism development. *Springer Science + Business Media*

# Urban Shrinkage: an analysis of research methods

M. van Herwijnen, M.F. Buil, V. Kerstens & G.E.J. Prudon

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Since the production of goods and the mining of raw materials shifted to low-income countries, post-industrial Western cities have been struggling with high unemployment rates. Urban areas that had a unilateral industry and have been unable to introduce new fields of work now face all kinds of problems (e.g. social, economic and cultural problems and a decreasing population). Besides that, changes in the political situation caused demographic changes in former social cities, which have been experiencing problems similar to post-industrial cities. Urban shrinkage concerns the trend of depopulation, resulting in vacant buildings and desolated neighbourhoods. Though, it does bring about several opportunities. The aim of this article is to investigate which research methods are suited for analysing urban shrinkage of post-industrial and post-social Western cities. This has been done by examining and subsequently comparing four research methods, namely comparative research, questionnaires, trend analyses and computer simulation. First of all, the subject of urban shrinkage is further described. Secondly, the methodologies are defined. Thirdly, the methods are elaborated. Finally, the methods are compared and a conclusion is given.

**KEYWORDS:** *Urban shrinkage, Research methodology, Post-industrial cities, Post-social cities, Declining population*

## 1 INTRODUCTION

Over the years, cities have developed and grown at a rapid pace, mainly due to the demographic impact of industrialization and deindustrialization. Demographically, cities throughout the world seem to be expanding rather than shrinking. However, the history of urban development is not always dominated by growth. (Audirac, 2007) As an artificial organism, a city has a life cycle with an incubation period, developing period, prosperous period, and a fading and shrinking period.

Starting from the 1980s, the globalization process has shown a coexistence of development and shrinkage. Two opposing trends have become particularly evident: on the one hand, cities in Asia and South America are growing exponentially. On the other hand, many western cities are facing urban shrink-

age defined by population decline. These two types of cities may indicate the most important form of urban innovation since the industrial revolution and set a new understanding of the urban development. (Rieniets & Oswalt, 2004)

It can be deduced that urban shrinkage will be a lasting phenomenon. Between 1950 and 2000, the number of shrinking cities increased by 330%. Among cities with more than 100,000 residents, this number increased by 240% (Rieniets & Oswalt, 2004).

During the last 50 years, most shrinking cities are located in western industrial countries, particularly in the US (59), the UK (27), Germany (26) and Italy (23). (European Environmental Agency, 2002) Since 1990, shrinking cities have increasingly been found in countries in former socialist Eastern Europe, such as Russia (13), the Ukraine (22) and Kazakhstan (13) (Rieniets & Oswalt, 2004).

As for the largest part, urban shrinkage is characterized by vacant industrial zones, abandoned hous-

es, unoccupied infrastructure and recession of urban fringe. In contrast, urban shrinkage in the United States is since 2006 mainly visible in the dense city centres, while the external suburbs continue to grow. Suburbanization in combination with de-industrialization, human migration, and in 2008 the Great Depression in the United States have helped researchers estimate that one sixth to one-quarter of all cities in the world are shrinking. (Pallagst, 2009)

In the context of de-industrialization, urban industrial cities have experienced socio-economic crises, mass unemployment, migrant workers, and physical changes in the structure, leading to a declining city population. On a global scale, the origin of urban shrinkage can be divided into three types:

The first one is the de-industrialization, referring to the industrial and service sector's reallocation, which leads to growth in some and degradation in other cities. The basis of employment in mono-structural industrial cities is outdated and no longer competitive (e.g. steel, textiles, automobile, port cities etc.). Deindustrialization comes along with the job decline in manufacturing. This does not mean that industrial sites no longer operate. However, when the industrial sites evolve into more efficient, high-yielding sites in de-industrialised cities, the amount of jobs needed for the site to operate will decline. (Kühn & Liebmann, 2012).

The second one is suburbanization; the phenomenon that inhabitants, industry and culture migrate from the city to remote areas. Lack of opportunities and high unemployment rates result in long-distance migration to the more prosperously developing regions. Due to the increasing trend of people becoming house owners and the differences between the real estate prices in the city and in the suburbs, people prefer to live in the suburbs. (Kühn & Liebmann, 2012)

The third one is transformation: structural political changes in social and economic systems of former socialist western cities. Natural population shrinkage is caused by birth deficits, but economic and social insecurities also have a negative impact on the reproduction and stabilisation of population. (Kühn & Liebmann, 2012)

After this introduction, we present a brief explanation of the methods researched in this paper. The following sections will focus on the properties, advantaged and disadvantages of the methods used when researching urban shrinkage.

## 2 METHODOLOGY

Several methods have passed in review, before choosing the four most suitable methods for further analysing. The quality of the articles in which these methods were used, and the amount of suitable articles were decisive for selecting the following research methods.

### 2.1 Comparative research

The definition for comparative research used in this paper is given by "Comparative research is a selection and analysis of cases that are similar in known ways and differ in other ways" (Jupp, 2006). Comparative research also focusses on discovering new facts about one or all of the things being compared (Heidenheimer, Heclo, & Tei, 1983).

In this paper this definition is used at the scale of cities. Comparisons are made between western - European, American and Australian - post-industrial cities.

### 2.2 Questionnaire

The definition of questionnaires as used in this paper is based on the definition given by Craig McLean: "A questionnaire is a set of carefully designed questions given in exactly the same form to a group of people in order to collect data about some topic(s) in which the researcher is interested" (Jupp, 2006).

In this paper questionnaires are specifically a set of written questions, which are often distributed by mail in one city and collected by the researcher.

### 2.3 Trend analysis

A trend is a certain development that becomes more general over time (Merriam-Webster). In the field of urban shrinkage the path of a trend can be affected by demographic, economic, political and geographic changes (Kabisch & Haase, 2011). Besides these changes, small fluctuations in the general direction might also occur.

Trend Analyses as studied in this paper is "the practice of collecting information and attempting to spot a pattern, or trend, in the information" (Engel & Schutt, 2012). By and large, the datasets are extensive and complex as they include numerous variables that are taken over several periods.

## 2.4 Computer simulation analysis

Computer simulation is used for making predictions about changes of the existing situation based on datasets of multiple variables and an added unknown variable to gain a more realistic result.

“Whereas other research methods (...) help researchers answer questions such as ‘what happened? why? how?’, simulation is best used to answer the question ‘what if?’” (Dooley, 2002).

## 3 RESULTS

### 3.1 Comparative research

Comparative research focusses on the discovery of new facts and on the differences between cases that have similar, already known aspects (Jupp, 2006) (Heidenheimer, Heclo, & Tei, 1983). The common aspect in the case of urban shrinkage is – obviously – the fact that a city is shrinking. In urban shrinkage demographic (population, migration) and economic (income, gross domestic product, jobs, unemployment) developments are combined (Wolff, 2010). In the used articles, the compared cities are western and have a post-industrial background. Cities that were not able to make the transition from an industrial economy to a service economy have to deal with structural shrinkage (Delken, 2006). A distinction is made between four kinds of cities – in terms of population growth or decline combined with economic growth or decline – known as urban growth poles, urban gravitation centres, downgrading areas and transition areas. (Wiechmann & Pallagst, 2012).

All sorts of data (e.g. questionnaires, statistical data) are used for comparative research. A negative side of using comparative research as a method is the lack of a reliable complete data source which permits a more complete comparison. Data sets can be different for each city and therefore hard to compare. Examples of lacking data are gaps of data from a certain period of time (Wolff, 2010), or little information about certain – more hidden – social groups (Buzar, Ogden, Hall, Haase, Kabisch, & Steinführer, 2007). Complex analyses in general are often limited due to these data gaps or must be modified to other spatial units or time periods (Wolff, 2010).

Though, comparative research has the positive quality that it takes the context into account. The influence of the context (area, social background, politics) and the approach used to cope with the effects of urban shrinkage can be well observed when comparing different cities. A few aspects of urban

shrinkage are the same; the cities are all western and have a post-industrial background. When comparing these cities, the consequences of certain policies show. Some cities handled shrinkage well; if the existing economic infrastructure in a shrinking city is transformed fitting to new needs, it can be successfully used for future development (Reckien & Martinez-Fernandez, 2011). These kinds of examples can be useful when handling shrinkage now and in the future.

### 3.2 Questionnaire

Questionnaires are a method which uses standardized forms to gather data from large numbers of participants. The collected data can then be interpreted. In the articles used, the interpretation always requires another type of research method. This method is often based on statistics which allows the collected data to be visualised (Reckien & Martinez-Fernandez, 2011) (Kabisch & Grossmann, 2013). By adding the questionnaire in the appendix, researchers provide other researchers the opportunity to validate their research (Kabisch & Grossmann, 2013). However, the article solely uses questionnaires as a means to gather data. By doing so, the disadvantages of questionnaires cannot be completely restricted. By relying solely on questionnaires, the truthfulness of a respondent is impossible to check. Furthermore, the questions are subjective, since they can be interpreted differently by each respondent. To partially eliminate the risk of subjectivity, multiple questionnaires throughout an extended period of time are used to collect data. This partially eliminates the risk that the data is a snapshot in time (Kabisch & Grossmann, 2013).

Another possibility to reduce the disadvantages of questionnaires is combining data from questionnaires with data from other data sets (Haase, Herfert, Kabisch, & Steinführer, 2012) (Silverman, Yin, & Patterson, 2012). These data sets are often developed by municipalities, based on quantitative data which creates a more objective source of data (Silverman, Yin, & Patterson, 2012). These municipal statistics often contain large amounts of data, including data which is irrelevant for the topic. These large sets of data require the researcher to identify usable variables, whereas data from questionnaires can be used almost immediately (Hollander, 2010).

Advantages of questionnaires when researching urban shrinkage are the large amounts of data which can be collected from a large number of participants. These data can then be interpreted quickly by the researcher. Furthermore, questionnaires provide the

possibility to measure change over an extended period of time.

Disadvantages of questionnaires are the subjectivity of respondents and the possibility of a snapshot in time (Rall & Haase, 2010). Furthermore, the collected data is limited by the questions asked by the researcher. These questions already contain assumptions and decisions made by the researcher.

When using questionnaires in a research concerning urban shrinkage, they provide the possibility to take into account the human aspects of the topic. Questionnaires give insight in the motives of people who move out of shrinking cities.

### 3.3 *Trend analysis*

Trend Analyses as studied in this paper is “the practice of collecting information and attempting to spot a pattern, or trend, in the information” (Engel & Schutt, 2012). The use of Trend Analyses in the field of urban shrinkage is chiefly applicable in combination with other research methods as Statistics and Questionnaire, but also Comparison and Case Studies. The articles that have been used for this paper are often combined with a specific purpose: “to give statistical evidence of present population trends for European agglomerations and to assess the dynamics behind a particular development of urban growth and decline” (Kabisch & Haase, 2011). Furthermore, in the articles published by (Delken, 2006) and Wolff (2010) recommendations are explicitly done for further research with specific use of methods: “The scientific comparison and the characterisation of urban development should be one of the main tasks in the near future” (Wolff, 2010).

Although Trend Analyses in other fields of research is often used to predict future events (CCIWA, 2015), this is rarely the case in researches to urban shrinkage. Rather, Trend Analyses is being used to describe and understand the tendencies during last decades, e.g.: “the aim of the paper was to try and better understand and differentiate the various types and causes of urban housing vacancy” (Couch & Cocks, 2013). Trend analyses is being applied on both local (Couch & Cocks, 2013) (Glock & Häussermann, 2004) (Kabisch & Grossmann, 2013) and interregional or international level (Delken, 2006) (Kabisch & Haase, 2011).

By and large, case studies and data are being acquired in England and former Eastern Germany, whereas in other European countries urban shrinkage is relatively unknown and also shrinkage percentages are lower (Delken, 2006). Cities as Liverpool and Leipzig have been experiencing strong

effects from the post-industrial and respectively post-social period and are useful case studies thanks to large amounts of data. This is also recognized by Kabisch & Grossmann: “using results from a unique sociological long-term survey carried out over 30 years in a large housing estate in Leipzig” (Kabisch & Grossmann, 2013).

Trend Analyses on urban shrinkage relies on the availability and continuity of data over a longer period of time. This directly leads to the main problem of this methodology; “the lack of a reliable complete data source which permits the comparison among whole Europe. (...) all countries, regions, as well as cities have to contribute and to deliver data. Consequently, the cities profit in turn because problem areas can be identified and a comparison with others is possible” (Wolff, 2010).

### 3.4 *Computer simulation analysis*

The advantages for the use of computer simulations is that it is possible to predict future development with certain accuracy and, by using artificial intelligence, to “move beyond static statistical techniques and benefit from the great strides of computational progress to provide a deeper insight into causes and effects of urbanization” (Rienow & Stenger, 2014). Also, the possibility to adapt to current trends and new insights by incorporating new variables into the model lead to a better understanding of the topic as can be seen in the research of Lauf, Haase and Seppelt, where they identified a problem and adapted an existing model to meet their demands: “meanwhile, population decline in urban regions is a trend across Europe. These effects are not well represented in urban simulation models because the models focus predominantly on urban sprawl and growth” (Lauf, Haase, Seppelt, & Schwarz, 2012).

There are, however, some disadvantages for this method as well. Simulation is based on detecting and predicting further development of patterns and therefore always holds an uncertainty.

Another disadvantage is that nowadays, most of the models predicting urban change are based on growth instead of decline of urbanization as is recognized by the authors of all five reference articles.

Over time, the predictions became more accurate (due to the increase in computer power) resulting in a shift in this field of research from a narrow view (trying to understand what parameters are necessary) to a broad view where researchers try to combine whole different branches within a method. This becomes visible when comparing a recent and an older research, where in the old research the understand-

ing of the subject is taking shape and different vital parameters are identified (Kabisch, Haase, & Haase, 2006), the newer researches focus on a broader approach (Lauf, Haase, Seppelt, & Schwarz, 2012).

At this moment, using computer simulations as a means to investigate urban shrinkage has potential and when further developed it can be of good use. All in all can be said that computer simulations are a reliable and very useful means of predicting how certain patterns will evolve: "simulation models can help us understand these complex dynamics and derive scenarios for the future" (Verburg, Schot, Dijst, & Veldkamp, 2004)

#### 4 CONCLUSIONS

The aim of this paper is to provide an overview of research methods which can be used when researching urban shrinkage. Since the topic is relatively young, the amount of articles is limited. This can clearly be seen when looking at certain research methods.

The methods which are to be used when researching urban shrinkage highly depend on the level on which the research is performed. When looking at a single city, questionnaires provide a good method to gather data. However, it is still unknown how well questionnaires function when multiple cities are studied over an extended period. This is due to the disadvantages of questionnaires; they are influenced by the subjectivity of participants. These participants are influenced by different, often unknown, factors. Determining those factors becomes more and more difficult when performing research on a broader level.

This can be seen in the results of comparative research, which also relies on other methods to get the required data. To compare different cities, it is recommended that these data sets are similar for each city, using the same method, approach etc. Apart from the fact that a lack of data can become a problem when looking very closely to details, a comparison between cities on a more general level can be very useful. Comparative research has the positive quality that it takes the context into account. The influence of the area, the social background, the politics etc. of a city and the approach used to cope with the effects of urban shrinkage can be well observed when comparing different cities. Some cities handled shrinkage well and transformed their existing economic infrastructure into an infrastructure fit to new needs. Comparing a city like the latter to a city with a less effective approach can be useful for other

cities that have to deal with shrinkage now and in the future.

At this moment, using computer simulations as a means to investigate urban shrinkage is challenging, since most models are based on urban growth. Yet this also provides opportunities. Computer simulations are a reliable and very useful means of predicting how certain patterns will evolve. Once the models have been altered in order to research urban shrinkage, they can be used to predict possible patterns in urban shrinkage. This in turn can lead to possible solutions. These possible patterns should be compared with results of trend analyses, in order to see if the model is functioning correctly. Trend analyses can also help to change the computer models, since they can analyse trends from the past providing researchers with possible reference points which computer simulation models have to meet.

Looking at the development in research concerning urban shrinkage, it appears that quantitative methods which rely on computer simulations and data analyses provide the biggest opportunities for further research. However, it is important to keep the human aspect in mind. The human aspect is represented in qualitative research such as questionnaires, interviews etc. This is necessary in order to understand the reason why people move out of a certain city.

#### ACKNOWLEDGEMENTS

This paper benefitted greatly from discussions our tutors Ana Pereira Roders and Anne-Marie Peters-van den Heuvel. We would also like to thank Ana Pereira Roders, Sukanya Krishnamurthy, Daan Lammers and Anne-Marie Peters-van den Heuvel for their inspiring lectures. Furthermore, we are grateful that Ellen Gooren reviewed our paper, providing us with useful tips. A special thanks goes to Ana Pereira Roders, for guiding our group process. She made sure we stayed on course, as a group.

#### REFERENCES

- Audirac, I. P. (2007). *Urban Shrinkage Amid Fast Metropolitan Growth (Two Faces of Contemporary Urbanism)*.
- Buzar, S., Ogden, P., Hall, R., Haase, A., Kabisch, S., & Steinführer, A. (2007). *Splintering Urban Populations: Emergent Landscapes of Reurbanisation in Four European Cities. Urban Studies Journal Foundation, Sage Publishers.*

- CCIWA. (2015, Januari 5). *Analyses and Trends*. Retrieved from CCIWA: <http://cciwa.com/economics/Analysis-and-Trends>
- Couch, C., & Cocks, M. (2013). Housing Vacancy and the Shrinking City: Trends and Policies in the UK and the City of Liverpool. *Housing Studies*, 499-519.
- Daintith, J. (2015). *A dictionary of Computing*. Retrieved January 6, 2015, from Encyclopedia.com: <http://www.encyclopedia.com/doc/1O11-statisticalmethods.html>
- Delken, E. (2006). *Domweg gelukkig in een krimpende stad? Een kwantitatief onderzoek naar de leefbaarheid van krimpende steden*.
- Dooley, K. (2002). Simulation research methods. In J. Baum, *Companion to Organizations* (pp. 829-848). London: Blackwell.
- Engel, R., & Schutt, R. (2012). *Practice of research in social work*. SAGE.
- European Environmental Agency. (2002). *Towards an urban atlas*. Copenhagen: European Environmental Agency.
- Gartner Research. (2013). *Gartner IT Glossary*. Retrieved from [www.gartner.com: http://www.gartner.com/it-glossary/big-data/](http://www.gartner.com/it-glossary/big-data/)
- Glock, B., & Häussermann, H. (2004). New Trends in Urban Development and Public Policy in eastern Germany: Dealing with the Vacant Housing Problem at the Local Level. *International Journal of Urban and Regional Research*, 919-929.
- Haase, A., Herfert, G., Kabisch, S., & Steinführer, A. (2012). Reurbanizing Leipzig (Germany): Context Conditions and Residential Actors (2000-2007). *European Planning Studies*, 1173-1196.
- Heidenheimer, A. J., Hecl, H., & Tei, C. (1983). *Comparative Public Policy*. St. Martin's Press.
- Hollander, J. B. (2010). Can a City Successfully Shrink? Evidence from Survey Data on Neighborhood Quality. *Urban Affairs*.
- Jupp, V. (2006). *The SAGE Dictionary of Social Research Methods*. London: SAGE Publications Ltd.
- Kabisch, N., & Haase, D. (2011). Diversifying European Agglomerations: Evidence of Urban Population Trends for the 21st Century. *Population, Space and Place*, 236-253.
- Kabisch, S., & Grossmann, K. (2013). Challenges for large housing estates in light of population decline and ageing: Results of a long-term survey in East Germany. *Habitat International*, 232-239.
- Kabisch, S., Haase, A., & Haase, D. (2006). Beyond growth - urban development in shrinking cities as a challenge for modeling approaches.
- Kühn, M., & Liebmann, H. (2012). Urban Regeneration - Strategies of Shrinking Cities in Eastern Germany. *Die Erde*.
- Lauf, S., Haase, D., Seppelt, R., & Schwarz, N. (2012). Simulating demography and housing demand in an urban region under scenarios of growth and shrinkage. *Environment and Planning B: Planning and Design*, 229-246.
- Pallagst, K. (2009). Shrinking cities in the United States of America: Three cases, three planning stories. *The Future of Shrinking Cities 1*, 81-88.
- Rall, E. L., & Haase, D. (2010). Creative intervention in a dynamic city: A sustainability assessment of an interim use strategy for brownfields in Leipzig, Germany. *Landscape and Urban Planning*, 189-201.
- Reckien, D., & Martinez-Fernandez, C. (2011). Why Do Cities Shrink? *European Planning Studies*, 1375-1397.
- Rieniets, T., & Oswalt, P. (2004). Global context. In T. Rieniets, *Shrinking cities, volume 1* (pp. 20-33). Ostfildern: Hatje Cantz Publishers.
- Rienow, A., & Stenger, D. (2014). Geosimulation of urban growth and demographic decline in the Ruhr A case study for 2025 using the artificial intelligence of cells and agents.
- Silverman, R. M., Yin, L., & Patterson, K. L. (2012). Dawn of the dead city: an exploratory analysis of vacant addresses in Buffalo, NY 2008-2010. *Journal of Urban Affairs*, 131-152.
- Thomas, R., & Milligan, C. (2004). *Teachers in the Loop: Tools for Creating and Customising Simulations*. Journal of Interactive Media and Education.
- Verburg, P., Schot, P., Dijst, M., & Veldkamp, A. (2004). Land use change modelling: current practice and research priorities. *GeoJournal*, 309-324.
- Wiechmann, T., & Pallagst, K. (2012). Urban shrinkage in Germany and the USA: A Comparison of Transformation Patterns and Local Strategies. *International Journal of Urban and Regional Research*, 261-280.
- Wolff, M. (2010). *Urban Shrinkage in Europe: Benefits and limits of an indicator-based analysis*. Dresden: Chair of Spatial Planning, Dresden University of Technology.

# How are different methodologies used to examine the correlation between ethnic and religious attachment among Muslim immigrants in the Netherlands?

Dartel, T.P.M. van, Hopstaken, R.C.A., Lieshout, T.J.J.L. van & Wang, M.

*Architecture Building and Planning, Eindhoven University of Technology, the Netherlands*

Habets W.F.C.J.

*Architecture Building and Planning, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** This research paper focuses on how different research methodologies are used to examine the correlation between ethnic and religious attachment among Muslim immigrants. This research is facing the serious issues regarding integration and social cohesion in multicultural societies and migration in The Netherlands. Dutch society is engaged with these issues in the context of current racial tensions and conflicts. The usage of different methodologies will broaden the scope towards the correlation between ethnic and religious attachment among Muslim immigrants in the Netherlands. Within this paper, different methodologies have been analysed to investigate their contribution to the growth of knowledge in this field. The aim is to define a reliable methodology for investigating the research question. The methodologies used in the analysed literature are review, comparative analysis, observation, survey and interview. Most of the literature is based on recent (post 2000) research due to the state of the art interest in this issue/problem. The data collection from the different methodologies is examined with the use of papers on the specific topic. Outcomes of a particular methodology can be compared with another methodology to examine the advantages and disadvantages of the specific methodology.

**KEYWORDS:** *Ethnicity, Identity, Immigrants, Religion, The Netherlands*

## 1 INTRODUCTION

*“A typical Dutch person doesn’t exist.”*

– Máxima Zorreguieta, 2007

The Dutch queen, then princess, Máxima assumed at the Scientific Council for Government Policy on 24 September 2007 that the Dutchman as one single identity does not exist. A wave of indignation went through the Netherlands when queen Máxima had uttered the words in the quote above. Does queen Máxima, then princess, of Orange-Nassau, deny a Dutch identity?

The infamous phrase was repeated endlessly on Dutch television. The urge to search for an Dutch identity became the foundation of this research. Keywords such as Dutch identity, Dutch culture and the Netherlands were used to find articles related to the Dutch identity. After multiple searches for related articles, it became clear that this topic was too general for the main research task.

This topic was too broad which resulted in an enormous variety in articles. Therefore, we elaborate on multicultural identity and focus on the role of minorities, taking the Muslim immigrant groups in the Netherlands as case study. Many articles related to Muslim immigrants in the Netherlands were found within the search for the Dutch identity. Especially articles related to Muslim immigrants in the Netherlands and their ethnic and religious attachment. This finding led to the formulation of a more specific research topic: correlation between ethnic and religious attachment among Muslim immigrants in the Netherlands. With the usage of keywords such as ethnicity, identity, immigrants, religion and the Netherlands, multiple articles related to this new formulated topic were found.

This specific subject is facing the serious issues regarding integration and social cohesion in multicultural societies and migration in the Netherlands. The Dutch society is engaged with these issues in the context of current racial tensions and conflicts (Peters, K. 2010). This research paper focuses on

how different research methodologies are used to examine the correlation between ethnic and religious attachment among Muslim immigrants in the Netherlands.

The main research question is: how are different methodologies used to examine the correlation between ethnic and religious attachment among Muslim immigrants in the Netherlands?

The usage of different methodologies will broaden the scope towards the correlation between ethnic and religious attachment among Muslim immigrants in the Netherlands. The aim is to define a suitable research methodology to investigate the Muslim identity within the Netherlands. This minority group will form the start of a new research on the Dutch identity. The findings within this minority group will function as a metaphorical mirror towards the Netherlands. The used sources are related to one of the five chosen research methodologies or a combination of multiple methodologies. The methodologies used are review, comparative analysis, observation, survey and interview. Observation, survey and interview methods provide insight in the direct connection with ethnic society, on the most 'zoomed-in' level. Review and comparative methods approach this topic from a broader view.

A total overview on our research question is expected, when the results from the five defined research methods are compared or combined with each other. These researches should form a point of view and conclusion on how our research topic can be approached in an improved method for further research. Additionally, this research provides a foundation and insight in how this subject can be approached on larger scale.

Most of the literature is based on recent (post 2000) research due to the state of the art interest in this issue/problem. The data collection from the different methodologies is examined with the use of papers on the specific topic. Outcomes of a particular methodology can be compared with another methodology to examine the advantages and disadvantages of the specific methodology.

This paper is based on the use of literature, about psychological and philosophical linked with ethnic identity in the Netherlands, to structure the research. Because of the cultural background ethnography is probably the best suited research methodology. The result of this methodology is our findings on this data collection.

## 2 METHODOLOGIES

The research methodology of this paper is based on exploring and analysing five different methodologies to answer the research question. The five analysed methodologies are: literature review, comparative analysis, observation, survey and interview. These methods are analysed and compared with each other to find suitable aspects which researchers could use within a research on the topic of this paper. A literature grid is used to get an overview of these methods and their advantages and disadvantages. In the following part of this paper the five methodologies are explained.

### 2.1 Literature review

Literature review is an account of what has been published on a topic by various researchers (Taylor, n.d.). Literature review is focusing on finding background information to define a topic with the use of secondary sources. The secondary sources are mainly found in previous research done by other researchers. Therefore, literature review does not report new or original work (Baglione, 2012). The results of these secondary sources could be obtained with the use of other methodologies, for example a questionnaire, interview or observation.

### 2.2 Comparative

Comparative research method is a broad term that includes both quantitative and qualitative comparisons (Mills, 2006). This method contains multiple disciplines in one study, for example, make comparisons across various countries. This method concerns the relationship among thinking, investigating and researching (Ragin, 1987). Most of the time, comparative method contains a comparison of studies with other methods. For instance, a comparative method may compare several case studies; several interviews of different groups of people, or several calculations and statistics.

### 2.3 Observation

The observation methodology is used to analyze how something happens or someone behaves. Observation can be seen as the most informative method of research, it includes all perceptions of the observer (Novikov & Novikov, 2013). The aim of this methodology is to identify salient features or peculiarities of a specific population. This methodology

may take various forms which can be structured or non-structured and participatory or non-participatory. In a structured observation the key elements are formulated in advanced. With a non-structured observation there will be an analysis on what happens during a particular activity or action, and filter out the uncommon features. During participant observation, the researcher takes part in an activity or environment in which the research is held. Non-participatory is the opposite approach (Novikov & Novikov, 2013)

#### 2.4 Survey

Survey research is often used to assess thoughts, opinions, and feelings. It can be roughly divided into two types: questionnaires and interviews which consist of a predetermined set of questions that is given to a sample. With a representative sample, which means, one that is representative of the larger population of interest, one can describe the attitudes of the population from which the sample was drawn. Further, one can compare the attitudes of different populations as well as look for changes in attitudes over time (Shaughnessy, Zechmeister & Zechmeister, 2011).

#### 2.5 Interview

Interview is a research method that has been frequently used in qualitative research. This method is a qualitative approach that differs from a small to a large number of participants. During the interview research method, each individual is allowed to talk openly about the topic without being interrogated with specific questions by the researcher (Creswell, 2003). Related to this topic and the methodology, the interviewers made use of open-ended questions. Frequently an interview has been used in combination with a traditional survey.

### 3 RESULTS

To approach the research question in a methodological way, twenty-five articles are analysed. The analysed articles are related to the five different methodologies (as defined in the methodology chapter) in which each methodology is represented within five articles. These articles are informative on the subjects of ethnicity, immigrants, religion and Muslim immigrants. Within the field of this topic, advantages and disadvantages are analysed by methodology and discussed in the following parts.

#### 3.1 Literature review

The obtained sources have been collected over time, which defines a positive aspect about the method, but denotes also a negative side. Reviewing articles on the topic of ethnicity and religion of Muslims in The Netherlands presents an opportunity to explore, in a systematical way, what people generally know on this topic so far (Arasatnam, 2013). Unfortunately, the timespan in which the data has been collected affects the results. When a study has been carried out in 1967 the world was right in the middle of the cold war (Veer, 2003), or within an economic boom and labour shortage (Nijenhuis, Jong, Evers, & Flier, 2004), people react differently on the same topic. The dataset which has been collected to formulate results for the literature review is obtained out of many different studies. Each particular reviewed study consists of different methodologies, e.g. a questionnaire on teacher interaction (Brock & Levy, 2005) or reviewing existing theories (Phinney, Horenczyk, Liebkind & Vedder, 2001).

Finding the most suitable studies for the topic of a paper is a time-consuming work in comparison with other research methods. For example, in the research on the definition of multiculturalism the researchers had to read over 49 articles (Arasathnam, 2013). Finally, the literature review is guided by specific choices and/or assumptions formulated by the researchers (Arasatnam, 2013). Even conclusions, which were generated from the secondary sources, could be affected by a researcher's perspective. This problem was visible within the research of Van der Veer (2003).

In summary, the method is too general, time-consuming, based on former selective researches of comparable topics. Therefore, this method will not define the specific data for answering the research question, but define a more general overview of background information.

#### 3.2 Comparative

Comparative research method is a common and efficient method in scientific research. There are two main similarities noticeable in the five articles that are using the comparative method.

The first one is the comparison between their identities or problems among multiple countries; the second one is that the compared issues are not exactly in the same condition, however, the issues are in the same orientation. Those two similarities are efficient strategies where the researchers are able to get a clear view through the comparisons. However, the selection of a specific issue and topic is not united

which can be seen as an intractable problem when implementing this method. For example, in the article on 'What about the influence of Dutch culture on integration' (Gordijn, A. 2010), it is difficult to find the completely same category of a 'Dutch culture influenced' group to make comparisons in different countries. In other words, the scale and units of selection is wide and general in the article.

Thus the conclusions out of the comparisons might be less helpful and confusing if the compared issues are unclear and inaccurate. At the same time, when the level and scale of the compared issue is biased, the compared result is not reliable.

The article "*Language, ethnic identity, and the adaptation of Turkish immigrant youth in the Netherlands and Sweden*", (Paul Vedder, E.V. 2005), makes three sets of comparisons between two countries, meanwhile the article changes only one specific condition. Out of this strategy, the compared result gathered from comparisons is helpful and concrete due to the detailed and specific data. Whereas, according to Verkuyten (Verkuyten, M. 2001), the article shows it is also competent if the comparison carry out only in one country but in different target groups and same oriented cases.

To summarize, the five articles illustrate in comparative research, object selection and scale of comparison is pivotal; but it allows small margin of error, as long as the comparisons are held with similar causal conditions or assessing similarities in the outcome.

### 3.3 Observation

The observation methodology could be one of the most informative methods, although it has many complications (Novikov & Novikov, 2013). In four out of the five read articles, the observation methodology is combined with other methodologies such as interview and pre-knowledge from databases (Uitenbroek & Verhoeff, 2002) which makes it complicated to analyse what information is collected through the observation method.

Also the fact that most research is related to the participatory method, between ethnic differences, brings us another problem: gaining entrance and be accepted by this ethnic population (Reizevoort, 2007). There is still an unnatural atmosphere present when access is granted, in many researches the observer is seen as a foreigner (Boogaarts, 2008) whereby an unnatural habitat can be created. This relates to the so called 'observer paradox': The observer wants to perform the research in the most pure environment possible. However, the presence

of the observer as well as the material disturbs this pure environment (Reizevoort, 2007).

In the research of Meershoek, Krumeich & Vos (2010), where the consequences of social differentiation of physicians in Dutch illness certification between the Dutch and immigrants is investigated, another aspect emerges. This aspect is part of the unconscious of the humanity is called prejudice. One of the conclusions in this article is that the physicians observe Dutch people as individuals and the immigrants are observed as one cultural category which is a wrong interpretation. Due to the fact that many philosophers stated that everyone has prejudices and that the observational methodology in many cases is done by a singular person, the authenticity of the research on ethnic level can be questioned. Evenmore, the first impression and the self-fulfilling prophecy are factors which can give a twist to the outcome of a research.

In short, human behaviour depends on interpretations of social situations, from participants as well the observer, some outcomes can vary in the same research (Reizevoort, 2007). Also the fact that people, especially ethnic youngsters, behave different when being conscious of the fact that the people will be analysed (Reizevoort, 2007; Boogaarts, 2008). Those people can give some incorrect or incomplete information of the research.

To summon, this methodology could be a useful methodology, however, in the analysed literature there are too many unreliable facts related to the ethnic and Dutch culture. A non-participatory observation methodology could eliminate some of those facts.

### 3.4 Survey

Ethnicity and religion occurs in population groups, this research focuses on the Muslims in the Netherlands. A survey research is suitable for the search on correlation between religious and ethnic attachment due to the defined population group.

All reviewed literature within this research methodology made use of various samples. However, the samples taken in the reviewed literature differ between 230 and 1861 participants. This number of participants is relatively small compared with the total of 825.000 Muslims (CBS, 2009) in the Netherlands which influences the credibility of the research.

Within most used researches, difference has been made between samples within the complete sample. Differences such as first and second generation Muslims (Maliepaard, Lubbers & Gijsberts, 2010), Mo-

roccan and Turkish Muslims (Wissing, Deković, Yagmur, Stams & Haan, 2008), and Muslim adolescents and Muslim adults (Gieling, Thijs & Verkuyten, 2012). These differences within the samples reduce the taken sample even more which is not beneficial for the credibility of the specific survey research.

Within a survey research multiple issues are framed, the way the issues are framed have influence on the outcome of the survey (Gieling, Thijs & Verkuyten, 2012). According to Gieling, Thijs & Verkuyten (2012) it is possible to frame a question in a positive, negative and a neutral manner. Due to the sensitivity of the researched topic it is important in what way different issues have been framed since it can influence the outcome of the research. The outcome of a survey research is statistics, based on the framed issues towards the taken samples. These outcomes make the survey method a static research which contains no dynamic.

### 3.5 Interview

The number of participants of the reviewed literature within this research methodology is ranged between 3 participants and 3,900 participants. Within the interview methodology, participants are allowed to speak free about the questions related to the topic of ethnicity and religion.

During the interview, the researcher could recognize social cues as voice, intonation and body language (Weiss, 1994). Both aspects together provide the researcher a qualitative data collection. On the other hand, the interview-method has various disadvantages. The first disadvantage is the number of participants. The small number, for example the 1,127 children which are selected from municipal registers of two large cities (Verkuyten, Thijs & Stevens, 2012), are not representative for the Netherlands in general. The data collection is representative for the two large cities in which the participants live.

In the other four articles, the number of participants is lower, e.g. the three Muslim businesswomen (Essers & Tedmanson, 2014). Besides the number of participants, the study depends on the interviewees as well. Probably recruiting participants is the most difficult part of the interview, because the participants can refuse to participate, or for instance the parents do not grant permission to interview their children (Verkuyten, Thijs & Stevens, 2012). Furthermore the language can be a problem for the participants, especially in this topic in which immigrants were interviewed.

One of the articles describes that the Turkish and Moroccan immigrants could not participate because of the language barrier (Vroome, Verkuyten & Martinović, 2014). In summary the interview-method is a small scale-method, which means that the data is qualitative and detailed. However, the limited number of participants is not representative for a larger entity. So an interview, according to the read articles, is less suitable for the research to ethnic and religious identity in a larger entity.

## 4 CONCLUSION

Throughout the study we have formulated the value and effectiveness of the five methodologies and analyse the problems and benefits of each method. To conclude, a summary of weaknesses and strengths has been made for each methodology. The method of literature review is too general, time-consuming and based on former selective researches of comparable topics. Therefore, this method will not define the specific data for answering the research question, but define a more general overview of background information.

The comparative method is considered as an efficient method due to the fact that this method uses multiple and diverse perspectives. Moreover, it can help highlight the advantages and disadvantages of a specific issue and therefore, the comparative method is a useful method for the research about Muslim immigrants in Netherlands. However, the scale and level of compared issue selection is difficult to grasp.

The survey method is suitable for the research topic due to its relationship with a certain population and the outcome is static data which makes it a credible research method. However, issue framing and the scale of the sample could influence the credibility of this research method.

Observation and interview can be a method to assist a research, whereas both are not the best choices for the research on ethnic and religious identity. At first, the methodology of observation seemed to be a suitable methodology. However, many variables in this method related to our topic are increasing the complexity of producing a reliable research. The analysed literature is a non-suitable method for creating a convincing statement on the research question. The non-participatory seems to eliminate some variables, which makes this part of the methodology more suitable for analysing the ethnic group.

The interview-method is deployed on a minor scale, this leads to a qualitative and detailed data collection. However, the results are not representative for a larger entity due to the insufficient number of participants. So an interview, according to the read articles, is less suitable for the research to ethnic and religious identity in a larger entity.

From our point of view, both observation and interview methods are less helpful; whereas the combination of literature review, comparative and survey are the most applicable and suitable method for our research of ethnic and religious identity. The research should start with literature review related to our topic to gain and broaden knowledge. Following, the reviewed literature is compared to frame certain issues that will be used in a survey among the target group, in our case the Muslims in the Netherlands.

## ACKNOWLEDGEMENTS

The authors would like to express their gratitude to Drs. Ana Pereira Roders, Assistant Professor at University of Technology Eindhoven, for mental support and comments on previous drafts of this research during the course. The twenty-five articles have been obtained from Scopus through a license from the Technical University Eindhoven.

## REFERENCES

- Arasaratnam, L., (2013) A review of articles on multiculturalism in 35 years of IJIR. *International Journal of Intercultural Relations*, 37, 676-685
- Baglione, L. (2012) Writing a Research Paper in Political Science. *Thousand Oaks: CQ Press*.
- Bertossi, C. (2011). National Models of Integration in Europe: A Comparative and Critical Analysis. *American Behavioral Scientist*, 1561-1580
- Boogaarts, S., (2008) Claiming Your Place at Night: Turkish Dance Parties in The Netherlands, *Journal of Ethnic and Migration Studies*, 34:8, 1283-1300
- Brok, P & Levy, J., (2005) Teacher-student relationships in multicultural classes: Reviewing the past, preparing the future. *International Journal of Educational Research*, 43, 72-8
- Creswell, J. (2003). Research Design: Quantitative and Qualitative Approaches. (Second ed.) *Thousand Oaks, CA: Sage Publications*
- Essers, C., Tedmanson, D., (2014). Upsetting 'Others' in the Netherlands: Narratives of Muslim Turkish Migrant Businesswomen at the Crossroads of Ethnicity, Gender and Religion. *Gender, Work and Organization*, 21(4), 353-367
- Gieling, M., Thijs, Verkuyten, M., (2012) Dutch Adolescents' Tolerance of Practices by Muslim Actors: The Effect of Issue Framing. *Youth & Society*, 44(3), 348-365
- Gordijn, A. (2010). What about the influence of Dutch culture on integration? *European Journal of Social Work*, 217-229
- Hagendoorn, L., Poppe, E., (2011) Tolerance in the Netherlands. *Utrecht University*
- Junger, M., Polder, W., (1992) Some Explanations of Crime Among Four Ethnic Groups in the Netherlands. *Journal of Quantitative Criminology*, 8(1), 51-78
- Maliepaard, M., Lubbers, M., Gijsberts, M., (2010) Generational differences in ethnic and religious attachment and their interrelation. A study among Muslim minorities in the Netherlands. *Ethnic and Racial Studies*, 33(3), 451-472
- Meershoek, A., Krumeich, A. & Vos, R., (2011) The construction of ethnic differences in work incapacity risks: Analysing ordering practices of physicians in the Netherlands. *Social Science & Medicine*, 72, 15-22
- Mills, M. (2006). Comparative Research persistent problems and promising solutions. *International Sociology*, 619-631.
- Nijenhuis, J., Jong, M., Evers, A., Flier, H., (2004) Are Cognitive Differences Between Immigrant and Majority Groups Diminishing? *European Journal of Personality*, 18, 405-434
- Novikov, A.M. & Novikov, D.A. (2013). From Philosophy of Science to Research Design. *CRC Press*
- Oppenheimer, L., (2011) National identification of Dutch youth: An exploratory study. *Journal of Adolescence*, 34, 445-453
- Paul Vedder, E. V. (2005). Language, ethnic identity, and the adaptation of Turkish immigrant youth in the Netherlands and Sweden. *International Journal of Intercultural Relations*, 317-337
- Peters, K., (2010) Being Together in Urban Parks: Connecting Public Space, Leisure, and Diversity. *Leisure Sciences: An Interdisciplinary Journal*, 32:5, 418-433
- Phinney, S., Horenczyk, G., Liebkind, K. & Vedder, P., (2001) Ethnic Identity, Immigration, and Well-Being: An Interactional Perspective. *Journal of Social Issues*, 57, 493-510
- Radosveta Dimitrova, A. C. (2014). Turks in Bulgaria and the Netherlands: A comparative study of their acculturation orientations and outcomes. *International Journal of Intercultural Relations*, 77-86
- Ragin, Charles C. (1987) The comparative method: moving beyond qualitative and quantitative strategies. *Berkeley (CA): University of California Press*.
- Reizevoort, B. (2007) Omdat ik die moiboï ben wil je me haten, toch!. *Meertens Instituut: University Utrecht*
- Shaughnessy, J., Zechmeister, E. & Zechmeister, J. (2011). Research methods in psychology (9th ed.). *New York: McGraw Hill*
- Siebers, H., (2009) Struggles for recognition: The politics of racioethnic identity among Dutch national tax administrators. *Scandinavian Journal of Management*, 25, 73-84
- Taylor, D. (n.d.) *The literature review: A few tips on conducting it*. Retrieved from <http://www.writing.utoronto.ca/advice/specific-types-of-writing/literature-review>
- Tolsma, J., Lubbers, M., Gijsberts, M., (2012) Education and Cultural Integration among Ethnic Minorities and Natives

- in the Netherlands: A Test of the Integration Paradox. *Journal of Ethnic and Migration Studies*, 38(5), 793-813
- Uitenbroek, D.G., & Verhoeff, A.P., (2002) Life expectancy and mortality differences between migrant groups living in Amsterdam, the Netherlands. *Social Science & Medicine*, 54, 1379-1388
- Veer, K., (2003) The future of western societies: multicultural identity or extreme nationalism? *Future* 35, 169-187
- Verkuyten, M. (2001). Global self-esteem, ethnic self-esteem, and family integrity: Turkish and Dutch early adolescents in The Netherlands. *International Journal of Behavioral Development*, 358-366
- Verkuyten, M., Thijs, J., Stevens, G. (2012) Multiple Identities and Religious Transmission: A study among Moroccan-Dutch Muslim adolescents and their parents. *Child Development*, 83(5), 1577-1590
- Vroome, T. de, Verkuyten, M., Martinovic, B., (2014) Host National Identification of Immigrants in the Netherlands. *IMR International Migration Review*, 48(1), 1-27
- Weiss, R.S. (1994). Learning from strangers, the art and method of qualitative interview studies. *New York, NY: Free Pr.*
- Wissing, I. B., Deković, M., Yagmur, S., Stams, G. J., Haan, M. de (2008) Ethnic identity, externalizing problem behavior and the mediating role of self-esteem among Dutch, Turkish-Dutch and Moroccan-Dutch adolescents. *Journal of Adolescence*, 31, 223-240

# Management of the historic urban environment in a developing city

S. de Gaetano, L. Lagendijk, J. Rooding, W. Rooding & S. Vos

*Urban Design and Planning, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Historical landscapes and monumental buildings play an important role in the urban planning of a city. During the development of an urban area, choices have to be made regarding which historical parts to keep in a city, which to renovate and which to demolish to make space for new contemporary architecture. Different factors play a role in this decision making, for example the possible future function of the building or urban space as well as, economic, political, social and cultural factors. Decision making in this area of interest rarely leads to an unanimous result: there is always a conflict of interests (Vaz, 2012). Research for the management of historical value of landscapes and monumental buildings in the urban space and their relevance in the contemporary city will be the basis of this literature review.

The purpose of this literature study is to review 25 scientific articles which will give us an insight in this issue of urban conservation in a developing contemporary city. The literature we will examine has applied five different methods of analysis to reach both a conclusion on the research field and the methods. The aim of the present study is to contribute to optimizing the information on used methods within the research field.

**KEYWORDS:** *Heritage, Urban, Growth, Development, Historic*

## 1 INTRODUCTION

Fast urban development is having a key impact on the historic urban environment (Yung, Chan & Xu, 2014). Population growth has led to the rapid development of urban areas across the world. Nowadays the majority of people live in urban centers, and the number is expected to increase in the upcoming decades. Economic, social and cultural factors shape the future of cities and landscapes. The impact of these play a role in conservation, redevelopment and sustaining the urban city centers. Cultural heritage is an extraordinary resource which includes monuments, neighborhoods, landscapes and whole cities, but it also represents a capital which needs to be preserved, since it holds values and traditions of a given territory and its inhabitants.

Urban heritage management is an essential tool to produce a balance between the preservation of the atmosphere of existing heritage and the changes brought by the urbanization process (Nasser, 2003). The construction of urban images is part of the global economy, and modern views of the city are the result of the interaction between politics, culture and

markets (Swensen, 2012). Increasingly, governments recognize the important contribution that built cultural heritage makes to the social well-being of different groups living within increasingly cosmopolitan towns and cities. Heritage is seen as a major component of individual and collective quality of life, often the less tangible features of townscape give the city its unique character and provide with a sense of belonging that lies in the core of cultural identity (Tweed & Sutherland, 2007).

Preservation and rehabilitation of urban districts have a positive effect on the economic value of land value and properties. The attractiveness of areas is also determined by well-preserved cultural heritage; in those areas we see an increase of real-estate prices, tourism and employment rates (Winsom-Geideman, 2007).

This literary study focuses on the urban growth and development of cities and regions with heritage areas. In first instance the research question was very specific, and it regarded only cities with an ancient Roman history. The research question was then widened to include a larger quantity of articles which would contain numerous different methods.

Out of the various scientific articles found, emerged that several methods were used during research in this field. The articles were categorized based on methodology and afterwards five of the most occurring were selected: survey, SWOT analysis, literature, mapping and statistics.

Many of the found scientific articles regarded urban heritage from a tourism and economy point of view. These articles were included in the research as well.

The aim of this literature review is to find out which of the analyzed methods gives a larger contribution to the topic and what advantages and disadvantages each methodology offers when researching urban heritage in a developing city.

## 2 RESEARCH METHODOLOGY

To find the scientific articles the authors used *scopus.com*, *europaena.com* and *sciencedirect.com*. The key words used for the research are: urban planning, historical city, heritage, historic landscape, urbanism, planning, cultural heritage, development and monuments. They selected 25 articles based on the abstracts, and will proceed classifying the articles according to the used methods. To compare the literature there is created a methodology, including a program of five steps. First (1), set up some open questions to get an overview of the article research question, the aim of it and the used method. The authors read the answers to each other's open questions to get an idea of the articles and to evaluate more correctly the methods in relation to each other. The next step (2) is to arrange some closed questions that can be answered using a scale limited from 1 to 5 to avoid personal evaluating errors (very good, good, neutral, bad, very bad). The questionnaire will be divided into 3 categories (why, what, how), each of will have sub questions. Afterwards (3) the numerical data is inserted into a graph to compare the strengths with the weaknesses of each method. The found data will be related to the qualitative answers to declare the results (4). In the last step (5), conclusions will be drawn.

## 3 METHODS

### 3.1 Survey

The survey is an important methodology applied in social research for measurements. It includes any type of measurement procedures which involve asking questions of respondents. The survey methodol-

ogy encompasses questionnaires, interviews and field surveys to gather information regarding a certain topic from a population (Trochim, 2006). Surveys can have both a subjective or objective approach, and have quantitative or qualitative types of questions. It is a method to gain data on a topic, which can include perceptions and opinions of the respondents.

### 3.2 SWOT analysis

SWOT is a tool that identifies the strengths, weaknesses, opportunities and threats of an organization. Specifically, SWOT is a basic, cost and time efficient, straightforward model that assesses what an organization can and cannot do as well as its potential opportunities and threats. The method of SWOT analysis is to take the information from an environmental analysis and separate it into internal (strengths and weaknesses) and external issues (opportunities and threats). Once this is completed, SWOT analysis determines what may assist the firm in accomplishing its objectives, and what obstacles must be overcome or minimized to achieve desired results (Investopedia, n.d.).

### 3.3 Literature

Literature based research methodology has often been referred as literature review. To some extent this is true, but the problem is that as such it has blurred the understanding between literature review as a methodology in its own right and its utilization in the process of empirical research. To make a differentiation, literature based methodology is defined as designing a research project where existing literature, but also data, is the basis where the researcher builds his research on by making new connections. This can be done in a more systematic or comprehensive overview (Hart, 2001).

### 3.4 Mapping

Mapping, also known as spatial analysis, includes any of the formal techniques which study entities using their topological, geometric or geographic properties. A variety of techniques are used, many still in their early development. Great advances in mapping have been made over the last ten years in terms of new cartographic applications in visualization, 3D, digital cartography and with new beginnings now in virtual reality (Sluter, 2001). Results of this type of

research always contain graphical representations, in which arguments and answers can be found.

### 3.5 Statistics

Statistical analysis relates observed statistical data to theoretical models, such as probability distributions or models used in regression analysis. By estimating parameters in the proposed model and testing hypotheses about rival models, one can assess the value of the information collected and the extent to which the information can be applied to similar situations. Statistical prediction is the application of the model thought to be most appropriate, using the estimated values of the parameters (Daintith, 2004).

## 4 REVIEW

### 4.1 Survey

The survey methodology goes well with the topic of ‘urban growth in a heritage context’ because it combines well with other research methods, which in this case can together give a more complete and accurate understanding of reality. Analyzing urban growth in a heritage context can be complex because a great number of factors play an important role in understanding the relationship between new urban development and historical areas (Tweed & Sutherland, 2007). Different levels of information need to be discovered by the researchers, and using a combination of methods will result in a deeper understanding. Researching history also implies that often you will encounter limited quantities of data survey is a flexible method which can work with both large and limited data amounts (Lee, 1996). Survey can be involved in different contexts, formal and informal situations (Swensen, 2012), and have variable questionnaire lengths. This advantage is useful for a research since it adapts easily to the needs of the researchers and the context of research. Survey through informal interviews is a method which can achieve depth and knowledge of a specific area (Swensen, 2012; Kovacs, Galvin & Shipley, 2014). This kind of method also allows the interviewers to play a role, and their opinion, insights and perceptions have meaningful value in the research (Tweed & Sutherland, 2007). In case studies, questionnaires can be used to gain information on the area thanks to the respondents’ personal knowledge of the location

(Yung, Chan & Xu, 2014). However, surveys can also be objective.

Survey is often used in the first phases of a field research, it can evolve during the process and accommodate different depth levels of the questionnaires. It is a broad technique which contains different types of questionnaires, field surveys and interviews. The data found with the surveys needs to be processed afterwards into tables (Lee, 1996) and can be used in further research analysis. The combination with different research methods leads to the achievement of depth and complexity in the research (Swensen, 2012).

### 4.2 SWOT analysis

SWOT analysis is a method which can accurately and objectively analyze the current state of an object, to sharpen the focus of the situation analysis. Mainly, in every paper, this method results in a list of features of the problem field, divided in the four categories of SWOT. In each category the features are ranked by value and explained by their content. Mostly, participant’s observation and documentary reviews have been adopted in capturing and analyzing the available data of features (Halla, 2007; Sarvarzadeh and Abidin, 2012; Alizadeh and Habibi, 2008; Xhang, 2012). Also, surveys, morphological analysis, lynch analysis and interviews will be useful for gathering data (Doratli, Hoskara and Fasli, 2009). A couple of papers use an own designed method, based on the SWOT analysis (Doratli, Hoskara and Fasli, 2009). As in the paper about the SWOT analysis of strategic urban development (Halla, 2007), it exceeds its weaknesses and threats. As such, it is about aiming at preparing and implementing a strategic development planning framework (SDPF). Therefore, it uses a process of strategic urban development-planning framework (SUDPF), which contains a status rank of each implemented project or workable strategy, by reviews such as ‘being implemented gradually’ to ‘not implemented’.

The purpose of this analysis is to assess a basis for a continued practice compared to the earlier approaches. Other methods are combined to this method, to achieve a more accurate interpretation of the problem field. After completing the SWOT analysis an approach can be proposed to utilize the strengths in order to take advantage of the opportunities that have been identified, to utilize the strengths to overcome the threats and how the weaknesses can be minimized to overcome the identified threats. Alt-

though it is an easy and quick method, when it is used in a form of a matrix, this method is a great tool for identifying properties and potential of an urban area and its heritage.

#### 4.3 Literature

After analyzing the five articles, based on literature review, there were some remarkable issues that stood out. All of the articles contain on references, in which all of the information is found. The differences between the articles are presented by the use of qualitative and quantitative questions, which creates a clear comparison. In all of the cases there is a detailed explanation of the delimited area, because the examine topic itself has to be clear. It is the intention to create a theory for general use, but this is almost impossible. It therefore appears that the most studies only applies for specific locations. There is to be seen a difference in the aim of the research. In the most cases they first look to the past, then to the current situation, and use this theory as a background to get a better idea for the future (Antrop, 2005). Another way to use the literature is to create a sort of framework, or the so called decision-aid tool, to help making future decisions in the field of the preservation of cultural heritage (Ryberg-Webster and Kinahan, 2014). Remarkable is that almost all cases use a case study to test their findings in the article. A comment on this is that the found theory is only eligible for this case. A bottleneck of literature research is that it requires lots of time, because of the many references there are. Additional to that, the sources have to be verified and easy retraceable, when someone else will use it.

Literature is a helpful method to analyze the past of the preservation of cultural heritage in combination with urban growth, because there has been a lot written and researched in this area. Concluding, the literature research is a very theoretical method. It goes in particular about the way they deal with preservation of cultural heritage in the past in order to find a new way to deal with it in the future.

#### 4.4 Mapping

The results of the analysis show that the method mapping is like a paradox. Although the reviewed articles differ in the construction, it is actually just the level on which it is done that creates this ostensible contradiction. The differences are present due to the use of both qualitative and quantitative data as

fundamental for the mapping. In addition there are different types of spatial analysis, e.g. GIS (3D-modeling) and measured drawings, within the realm of mapping. Similarities can be found in the construction of the research. In many cases there is a relatively extensive explanation of the used spatial analysis, because some are quite unknown. The method is focused on a specific area, which is being mapped. This is also the reason why it is always hard to apply the knowledge into a more general theory. Most of the articles result in highlighting the most important qualities and bottlenecks of the case. Then to turn them into challenges and conclude with some suggestions. Some of the articles even propose a mapping methodology, which can be used for other case studies. It becomes clear that it is important to research not only the research field, but also the used cartographically type. Spatial analysis go together with restrictions imposed by the mapping method, making this clear is a requirement for using this method.

If one of the aims is to manage change or conserve, then being able to capture cartographically the historical geography of what it is that is being managed or conserved is fundamental (Whitehand & Gu, 2010). Mapping is a useful method to analyze the differences between the traditional and re-use state. Results and their arguments are supported by clear images which make it hard to question (Yıldırım & Turan, 2012). Concluding, the research field has a spatial dimension and understanding this dimension requires a spatial analysis method. Both to create and support arguments.

#### 4.5 Statistics

Statistical methods are almost always used in combination with other methods. Data has to be collected using surveys (Winsom-Geideman, 2007) (Melstrom, 2013), local or national governments (Acosta & Parga, 2012) (Xie & Fan, 2012) or out of other existing resources. There are several possibilities to use statistics in researches; to describe the nature of the data to be analyzed, to explore the relation of the data to the underlying population, to create a model to summarize understanding of how the data relates to the underlying population, to prove (or disprove) the validity of the model or to employ predictive analytics to run scenarios that will help guide future actions. As visible in the article from Winsom-Geideman (2007) about heritage tourism and the preservation of historic architecture in Savannah,

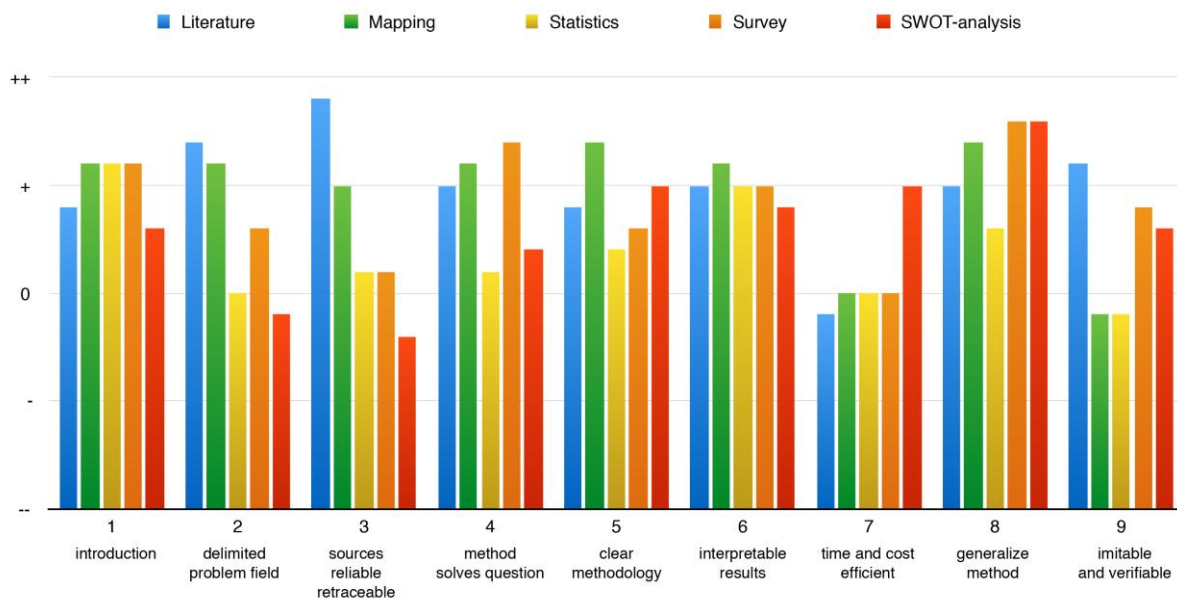
statistics are used to explore the relation of urban preservation and tourist. This is the most direct use of statistical research to get substantiated and reliable relations between the data that are easily imitable. In the article about the use of high resolution digital surface models for change detection and viewshed analysis in the urban area around the pyramids of Giza, statistical analysis is used to control measurement errors in digital surface models and viewshed analysis to get information about urban development. The article of Xie and Fan (2012) and the article of Melstrom (2014) both use statistics to reliably estimate outcomes, but not in the same manner. Melstrom estimates missing answer in surveys to compensate missing data to get more reliable conclusions, and Xie uses statistics to create a system with modifiable factors to run an agents-based modeling program to create scenarios for urban growth.

A clear similarity in statistical research and analysis cannot be found out of these five articles, because of the variety in how the statistical data is used. Statistical methods can be used for many different purposes. This makes it an important method for researchers.

## 5 COMPARISON

The quantitative data shows us that literature and mapping methodologies have a more clear delimitation of the problem field. The graph of Fig. 1 illustrates that these two methods make use of a large amount of sources, which contributes to a proper delimitation of the research field. From Fig. 1 emerges that the SWOT-analysis represents the most time and cost efficient methodology. The SWOT method scores low in problem delimitation and reliability of the sources, mostly because the data used derives from a combination of user's observations, literature research and surveys. This also causes this methodology to be particularly broad and not delimited. This result is in line with the description of the methodology. Literature, and to a lesser extent survey and SWOT analysis, are methodologies which easily imitable and verifiable, as seen in Fig. 1. Oppositely, mapping and statistics score low on verifiability and imitability, because of the complexity of these methods.

The quantitative data concludes the best suited method for the initial research field of this literature review is the literature methodology, followed respectively by mapping, statistics, survey and SWOT-analysis. Although literature has the highest score, it does not give contributions to new data in the research field, but it mainly concentrates on find-



**Fig. 1** Results of the quantitative questions compiled into a graph

ing new relations between existing researches.

## 6 CONCLUSIONS

### 6.1 Conclusion on methodology

Reflecting the quantitative data back to the qualitative answers we can notice that even if from the quantitative part we found a method which scores higher than the others, we can say that usually in a research a combination of methods is used. As a matter of fact each method has its own characteristics and is used in different moments of a research. Usually survey and literature are used in the beginning of a field survey, to get a better understanding of the research and collect the first data. The found data then is often compiled in statistical analysis, SWOT-analysis and mapping.

In conclusion we can say that the best methodology to answer this research question is to use a combination of methods, according to the specific needs of each case.

### 6.2 Conclusions on theme

Mainly, urban heritage is in danger of losing their traditional character if relevant measures are not put in place to ensure the continuity of this character. With the SWOT method a scan of the inventory of these urban heritage in an area was made to identify their value. Also, this method is used for re-evaluating the socio-demographic, economic, and physical indicators in order to assess the indicators of locational obsolescence. For example, in the article *Problematic Issues of Citizens' Participation on Urban Heritage Conservation in the Historic Cities of Iran*, it is concluded that the most significant point is in the weakness of UHC (*Urban Heritage Conservation*) management, which is the lack of a practical and legal mechanism of citizens' participation for UHC. On the other hand, it is also concluded that there are many opportunities to be derived from improving UHC program (Koorosh Sarvarzadeh & Zainol Abidin, 2012).

Perhaps a way to improve the UHC management is to involve more spatial analyses. Yildirim and Turan (2012) conclude that in order to analyze the monuments on their value it is useful to use the method mapping. The differences between the traditional and re-use state of monuments can emerge from the mapping results. In addition it can lead to identifying the impact of urban expansion on heritage according to Al-kheder, Haddad, Fakhoury, and

Baqeen (2009). This can be the basis of which suggestions can derive.

The traditional land management contains a lot of information according to Antrop (2005). Much wisdom and inspiration for sustainable management can be found here, which is useful when decisions have to be taken for the future management of historic landscapes. It shows ways how valuable elements and areas can be preserved and become embedded in the modern urbanized society. This historic preservation is largely an urban profession with strong ties to city planning and development (Ryberg-Webster & Kinahan, 2014). But in preservation management there remains a dearth of empirical research that addresses the intersection with urban revitalization. Ryberg-Webster and Kinahan call for an expansive research agenda to address preservation's role in revitalization and to rethink preservation policy in the twenty-first century.

Statistical evidence shows that preservation of heritage serves as the mechanism that stimulates tourism which then produces additional preservation activity according to Winson-Geidemon (2007). She also concludes that when cities will invest in downtown and neighborhood revitalization, they can have the opportunity to capitalize on an influx of tourism expenditures with increased investment resulting in increased property values and corresponding tax incomes. When monitoring urban expansion around heritage sites, population statistics on neighborhood level are necessary. These statistics are merely available on large-scale areas. To research areas on neighborhood level, the combination of 2D information and building height information provides statistics about how many cubic meters built-up area is added through time and this can further be used to estimate population numbers. These models can be used to stabilize or control the urban expansion around world heritage sites (Hendrickx, De Laet, Stal, De Wulf, & Goossens, 2013).

The contribution of the survey methodology in finding new answers to the issue of urban heritage in a developing context is that survey offers a different perspective. Many studies focus on a quantitative approach, while with this methodology you can also address resident satisfaction levels, perceptions, opinions and achievement of goals set for the HDRs (Kovacs, Galvin & Shipley, 2014). The survey method is often used as the basis for a new assessment method for the value of heritage, with the goal of understanding better the interactions between the built environment and citizens. Little is still known about this topic, and the lack of understanding of

these interactions is reflected in the lack of legislation to address the value of heritage and thus to combine the benefits of cultural heritage and new urban development (Tweed & Sutherland, 2007).

## REFERENCES

- Acosta, A., & Parga, J.C. (2012). Cultural resources and sustainability: improving city planning and urban preservation in a Mexican city. *The Sustainable City*, 7, 2, p. 893.
- Alizadeh, H., & Habibi, K., (2008). Monitoring the Character of Place in the Historical Site of Sanandaj, Iran. *Journal of Asian Architecture and Building Engineering*, 7(2), p. 201-208.
- Al-kheder, S., Haddad, N., Fakhoury, L., & Baqaen, S. (2009). A GIS analysis of the impact of modern practices and policies on the urban heritage of Irbid, Jordan. *Cities*, 26, p. 81-92.
- Antrop, M. (2005). Why landscapes of the past are important for the future. *Landscape and Urban Planning*, 70, p. 21-34.
- Daintith, J. (2004). A Dictionary of Computing. *Encyclopedia.com*. Retrieved from <http://encyclopedia.com/doc/1O11-statisticalmethods>
- Doratli, N., & Onal Hoskara, S. (2004). An analytical methodology for revitalization strategies in historic urban quarters: a case study of the Walled city of Nicosia, North Cyprus. *Cities*, 21(4), p. 329-348.
- Halla, F. (2007). A SWOT analysis of strategic urban development planning: The case of Dar es Salaam city in Tanzania. *Habitat International*, 31, p. 130-142.
- Hart, C. (2001). *Doing a literature search: a comprehensive guide for the social sciences*. London Thousand Oaks, Calif. Sage.
- Hendrickx, M., De Laet, V., Stal, C., De Wulf, A., & Goossens, R. (2013). The use of high resolution digital surface models for change detection and viewshed analysis in the urban area around the pyramids of Giza, Egypt. *Proceeding of the JURSE*.
- Koorosh Sarvarzadeh, S., & Zainol Abidin, S. (2012). Problematic Issues of Citizens' Participation on Urban Heritage Conservation in the Historic Cities of Iran. *Procedia Social and Behavioral Sciences*, 50, p. 214-225.
- Kovacs, J.F., Galvin, K.J., & Shipley, R. (2014). Assessing the success of Heritage Conservation Districts: Insights from Ontario, Canada. *Cities*.
- Lee, S.L. (1996). Urban conservation policy and the preservation of historical and cultural heritage. *Cities*, 13, 6, p. 399-409.
- Melstrom, R.T. (2014). Valuing a historic site with multiple visitor types and missing survey data. *Journal of Cultural Heritage*.
- Monteiro, V., Painho, M., & Vaz, E. (2014). Is the heritage really important? A theoretical framework for heritage reputation using citizen sensing. *Habitat International*, 45, p. 156-162.
- Mrak, I. (2013). A Methodological Framework Based on the Dynamic-Evolutionary View of Heritage. *Sustainability*, 5(9), p. 3992-4023.
- Noronha Vaz, E. de, Carbal, P., Caetano, M., Nijkamp, P., & Painho, M. (2012). Urban heritage endangerment at the interface of future cities and past heritage: a spatial vulnerability assessment. *Habitat International*, 36, p. 287-294.
- Noronha Vaz, E. de, Nijkamp, P., Painho, M., & Caetano, M. (2012). A multi-scenario forecast of urban change: A study on urban growth in the Algarve. *Landscape and Urban Planning*, 104, p. 201-211.
- Ryberg-Webster, S., & Kinahan, K.L. (2014). Historic Preservation and Urban Revitalization in the Twenty-first Century. *Journal of Planning Literature*, 29(2), p. 119-139.
- Sluter, R.S. (2001). New theoretical research trends in cartography. *Revista Brasileira de Cartografia*, 53, p. 29-37.
- Stubbs, M. (2004). Heritage-sustainability: developing a methodology for the sustainable appraisal of the historic environment. *Planning Practice & Research*, 19(3), p. 285-305.
- Swensen, G. (2012). Integration of historic fabric in new urban development – A Norwegian case-study, *Landscape and Urban Planning*, 107, p. 380-388.
- SWOT Analysis. (n.d.). In *Investopedia*. Retrieved from <http://investopedia.com/terms/s/swot>
- Trochim, W.M.K. (2006). Survey Research. *Research Methods Knowledge Base*. Retrieved from <http://socialresearchmethods.net/kb/survey>
- Tweed, C., & Sutherland, M. (2007). Built cultural heritage and sustainable urban development. *Landscape and Urban Planning*, 83, p. 62-69.
- Whitehand, J.W.R., & Gu, K. (2010). Conserving urban landscape heritage: a geographical approach. *Procedia Social and Behavioral Sciences*, 2, p. 6948-6953.
- Winson-Geideman, K. (2007). Heritage tourism and the preservation of historic architecture: the case of Savannah, Georgia. *Structural Studies, Repairs and Maintenance of Heritage Architecture*, 43.
- Xie, Y., & Fan, S. (2014). Multi-city sustainable regional urban growth simulation – MSRUGS: a case study along the mid-section of Silk Road of China. *Stoch Environ Res Risk Assess*, 28, p. 829-841.
- Yildirim, M., & Turan, G. (2012). Sustainable development in historic areas: Adaptive re-use challenges in traditional houses in Sanliurfa, Turkey. *Habitat International*, 36, p. 493-503.
- Yung, E.H.K., Chan, E.H.W., & Xu, Y. (2014). Sustainable Development and the Rehabilitation of a Historic Urban District – Social Sustainability in the Case of Tianzifang in Shanghai. *Sustainable Development*, 22, p. 95-112.
- Zhang, X. (2012). Research on the Development Strategies of Rural Tourism in Suzhou Based on SWOT Analysis. *Energy Procedia*, 16, p. 1295-1299.

# Differences in valuation between tourists and locals of world heritage in developing countries

Vries, M.C.H.M.de, Claus, N.Q., Kamphuis, M.A., Roeleveld, J., and Zon, L.E.N. van  
*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** A lot of developing countries have heritage designations with high touristic value. Both tourists and natives experience these artefacts, but do they experience them in the same way? This paper looks into this presumable difference in more detail. Possibly, the understanding of this difference could generate more efficient heritage preservation strategies. A better knowledge of the native perception could enrich the educative function of world heritage as well (Xiang, 2009).

It appears that there is a lack of established research in the field of global-local perception of heritage. For that reason, several research papers are examined which are closely linked to and have an overlap with the topic.

Research in the field of tourist satisfaction often reflects tourist perception of heritage. Researchers of global-local relations around heritage often encounter the different meanings which 'global' and 'local' people address to heritage. In various contingent valuation reports, which research global 'willingness to pay' the quantitative end of the concept of heritage valuation is considered.

This paper aims to examine how locals in developing countries value their world heritage sites in comparison to how tourists view the sites. Given the lack of research in this field, it was not possible to narrow down to a specific location in a certain developing country. The paper is based on the scope of 25 relevant articles. The research was mainly executed in Asian developing countries. There are 5 different methods considered, the way in which the data was collected. These methods were decided after comparing the 25 selected articles.

It is argued that an ethnographical topic like the global-local valuation of heritage needs to be studied in a mixed-method approach. The overview of current research reports shows that global-local perception of heritage in developing countries has been approached from both qualitative and quantitative sides, but that a combined study of the topic is still in its infancy.

**KEYWORDS:** *Heritage, Tourism, Developing countries, Valuation*

## 1 INTRODUCTION

Tourism is one of the world's largest and fastest growing industries (Ayad & Shujun, 2013). Mainly heritage sites in developing countries which have been recently added to the UNESCO World Heritage List have known a substantial increase in tourist visits (Jimura, 2010). This phenomenon influences the habitat of the local community substantially on economic, social, cultural, and physical levels. Consequently, the heritage sites become a tourist trademark. However, the importance of cultural heritage

in enhancing the feeling of national pride and cohesion has been undervalued (Huibin, Marzuki & Razak, 2013). In order to maintain the local identity of the heritage site for present inhabitants as well as for future generations, the management approach should combine development with preservation (Tarrafa, Imon & Roders, 2009). This challenge, as a cause of globalization, has gained the interest of researchers and planners both on an international and local level (Xiang, 2009; Chang, 1999; Su & Wall, 2008). For example, heritage protection zones are designated to ensure the preservation of the world heritage site (Tarrafa, Imon & Roders, 2009).

In order to better understand the impact of UNESCO World Heritage in sustainable tourism development, research has been carried out regarding the perception of tourists towards heritage (Daengbuppha, Hemmington & Wilkes, 2006). However, the influence of the rapid changes in the living environment in and around the heritage sites in developing countries might also influence the perception of locals towards the heritage site. The World Heritage site itself could perhaps be better maintained by involving the locals in its preservation management and making both tourists and locals aware of the value of the site (Abu-Khafajah, Rabady & Shafer Rababeh, 2014). The experience of the visitor on site could thereby be positively improved as well. However, at the moment there is little known about the impacts of World Heritage tourism on the life of local inhabitants in developing countries. Also, there is a lack of research on the perception of local communities towards World Heritage sites and sustainable tourism development. Furthermore studies (Jimura, 2010) have tended to focus more on the actual and tangible changes in local communities initiated by de UNESCO World Heritage designation rather than on the local communities' opinion about the changes in their living environment.

This paper compares the way in which local inhabitants and tourists value the World Heritage site in developing countries and the sustainable tourism development. An elucidation of the approach is presented. In addition, a more general recommendation for the most appropriate research methodology is given.

## 2 METHODOLOGY

### 2.1 *Research method*

The research started as an evaluation of relevant research papers, conference papers and literature about the research question. The five most frequently used methodologies in these articles were chosen as a starting point for further research on the subject. In defining these methods, discussion was involved. Some of the methods used in the articles were very specific and could therefore not be used as one category. The final methodologies that were chosen include observation, interview, survey questionnaire, the contingent valuation, and the comparative case study. More research was carried out to find a total of five relevant articles for each method. In some articles the outcome of the methodology was not included. For these articles the author of the article

was contacted to receive additional information and the data.

The authors of the articles seldom provide a definition of the method used. We came across different papers saying they were using one method, but they applied another. Also, a lot of researches combine different methods. In order to compare the results of the different methods the definition of these methods are important. In addition, the topic needs to be relevant to the stated research question. Therefore the research articles within the methods are compared and analyzed with these two aspects: the relevance to the research question, and the detailed information about how the method is carried out.

The 25 articles were combined in a literature grid, which was divided in a quantitative part, containing general facts and notes, and a qualitative document, in which the aims, objectives and methodologies are carefully described. Also, the methods are placed in the order of being specific to one person, case or location, such as the observation method, to reaching a larger amount of respondents, such as the contingent valuation method. The comparative case study method, within this framework, combines these specific to certain locations with cross-case study results that are relevant for broader implementation.

In every category of five articles the most relevant and striking aspects of the used methodology were formulated and compared to the given definition of the methodology. Also the relevant aspects of the content was formulated and reflected on the extent to which it answers the research question. Improvements in the texts were made after using a peer review in which all authors gave feedback on each other's texts.

To compare the methodologies and defining the conclusion the objectives were categorized in a second literature grid. The relations and contradictions are taken as the starting point of the conclusion in order to answer the research question.

### 2.2 *Definitions*

#### 2.2.1 *Observation*

The observation of the research subject without (onlooker observation) or with participation of the researcher (participant observation) whether overt or covert (Patton, as cited in Xiang, 2009) and oral communication with the research subject through spontaneous generation of questions in the natural flow of an interaction, which typically occurs as part of ongoing observation fieldwork (Patton, as cited in Xiang, 2009)

### 2.2.2 Interview

“With qualitative research interviews you try to understand something from the subjects point of view and to uncover the meaning of their experiences. Interviews allow people to convey to others a situation from their own perspective and in their own words. Research interviews are based on the conversations of everyday life. They are conversations with structure and purpose that are defined and controlled by the researcher. Although the research interview may not lead to objective information, it captures many of the subjects views on something. That’s why the basic subject matter is not, as in qualitative research, object data, but consists of meaningful relations to be interpreted.” (Kvale, 1996, p. 1)

### 2.2.3 Survey Questionnaire

A questionnaire is a structured sequence of questions, normally paper-and-pencil instruments that the respondent completes. Questionnaire surveys often exist of short closed-ended questions, but can also contain open-ended questions (Trochim, 2005). A questionnaire can be used for a large group of people and the structured questions results in data that can be analyzed and compared.

### 2.2.4 Contingent Valuation

“The contingent valuation method (CVM) is used to estimate economic values for all kinds of ecosystem and environmental services. It can be used to estimate both use and non-use values, and it is the most widely used method for estimating non-use values. It is also the most controversial of the non-market valuation methods.

The contingent valuation method involves directly asking people, in a survey, how much they would be willing to pay for specific environmental services. In some cases, people are asked for the amount of compensation they would be willing to accept to give up specific environmental services. It is called “contingent” valuation, because people are asked to state their willingness to pay, contingent on a specific hypothetical scenario and description of the environmental service” (King & Mazzotta, nd., “Overview”, para. 1).

### 2.2.5 Comparative Case Study

“A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. In other words, you would use the case study method

because you deliberately wanted to cover contextual conditions-believing that they might be highly pertinent to your phenomenon of study” (Yin, 2013, p.13). The comparative case study is a variation to this research method. It is a multiple case study and “then draw a single set of ‘cross-case’ conclusions” (Yin, 2013, p.17). Within the case study different strategies can be used, such as the survey and the archival analysis (Yin, 2013).

## 3 RESULTS

### 3.1 Observation

The output of observation and conversation is often treated as secondary data. Su and Wall (2012) executed a questionnaire survey which they initiated and checked with field notes made during observation. Su and Wall (2012) concluded that tourists and locals perception of the famous Great Wall did not differ much. The report concluded that local initiatives in heritage policies were turned towards economic, tourist development, while global initiatives tended to focus on sustainable and cultural significance.

In an article by Chang (1999), observation and conversation are deployed to a greater extent. The report states literally how several participants used to describe each other. Literal recordings of conversations add value to several conclusions in this chapter. The author quoted that “Little India is far from a ‘tourist trap’” (Chang, 1999, p. 98) and suggested a certain we-feeling among locals: “We must preserve our culture for our people and if it can attract tourists, that’s good as well.” (Chang, 1999, p. 98) Chang (1999) concluded that Little India district had a mainly economic meaning for its Chinese inhabitants, while Indian perception of the district had an economic and a spiritual component. Tourists appreciated the authenticity of the district.

This recording of literal, expressive designation is employed in Xiang’s doctoral thesis (Xiang, 2009) as well. Xiang’s research had a mixed-method approach, and utilized the benefits of observation and conversation in various ways. She tried participant observation and “chatted with vendors” while helping “to sell things to visitors” (Xiang, 2009, p. 114). Xiang concluded that the current power-relations in China excluded community involvement and public participation. Xiang concluded that local involvement in heritage policies was low, while the people were willing to contribute.

An exemplary research in this respect was executed by Edensor (1998) around the Taj Mahal. He

talked to drunk and eccentric people on purpose, trying to generate as much irrational and subversive perceptions as possible (Edensor, 1998). However, a disadvantage inherent to Edensor's approach is the relatively unstructured data output. Edensor (1998) concluded his research by proposing a classification of different narratives on the Taj – "colonial", "nationalist", "hindu", "muslim" and "other" (Edensor, 1998, p. 69-105).

Daengpubbha, Hemmington and Wilkes (2006) made an attempt to structure data from conversation and observation using grounded theory data analysis. According to the researchers, this inductive process made it possible to "understand visitor experiences in their own terms." (Daengpubbha, Hemmington & Wilkes, 2006, p. 368) The research resulted in the definition of several interdependent categories which described the total of tourist experience at three Thai heritage sites. (Daengpubbha, Hemmington & Wilkes, 2006, p. 382) concluded that tourists had an interactive experience of heritage, which had components like "perception of authenticity", "perceived value of heritage", "acquisition of knowledge" and "quest of experience".

### 3.2 Interview

These articles all use interview, as described in the definition, as the methodology for their research. The article of Jimura (2010) only interviewed 7 local specialists next to a survey that was filled in by 150 local residents. This combination makes it a valid research, but not under the methodology of only interview. The article of Jimura (2010) will not be further taken into account in this comparison. The other articles all make use of semi-structured or structured interviews which consist of open-ended which were used questions to obtain the perspective of the subject about site.

Where Abu-Khafajah, Rabady and Rababeh (2014) focuses only on the local residents, the other articles focus on the perspective of the locals and the tourist. Although Ryan, Chaozhi and Zeng (2011) mentions: "Obtaining data from visitors proved more difficult than anticipated." (p. 755)

In the conclusion of van der Merwe they don't reflect back on the perception of the locals and visitors, more on the future steps to be taken to positively evolve the Constitution Hill. The research is correct as an interview methodology, but not useful as its conclusion does not correspond to the research question of this article.

In the conclusions of the remaining three articles negative and positive aspects are mentioned. The

negative aspects state that in many heritage places tourism is an aim unto itself, instead of realizing beforehand the impact on social cultural and economic development of the location. It reveals that the showcasing of culture and history can create antagonism, especially if it is left completely in the hands of marketers to decide what to represent. (Teo & Huang, 1996) When locals are taken into account beforehand one can change the negative can become positive ones. As Ryan Chaozhi and Zeng (2011) mention: "as tourism grows in significance, there is a transfer of resources from more traditional industries to the newer, more profitable and often less onerous employment that is represented by the tourism industry, and thus changes in land usage are identified." (p. 760)

One can conclude that in general the use of interview is a good methodology to investigate the opinion of local people as well as tourists on a specific heritage location. It is the most direct and honest way to have in-depth insight (Abu-Khafajah, Rabady & Rababeh, 2014). There is room for own perspectives on a topic and when there are unclear answers one can elaborate on the subject. It is important to research a location and its inhabitants before developing a tourism attraction on a heritage site.

### 3.3 Survey questionnaire

All articles use questionnaire survey as their main method. The number of people surveyed lies between 233 and 417. In all articles the surveyed people are locals. In the articles of Chang (1999) and Teo & Huang (1995) tourist are surveyed as well.

The three articles of Ayad & Shujun.(2013), Long (2012) and Li , Shi-rong, Zhao, Yong & Dong-dong (2010) show a lot of similarities. The first similarity is that they divide the impact of tourism into the categories of economic, social-(cultural) and environmental impact. Also the articles of Ayad & Shujun (2013), Long (2012) and Li , Shi-rong, Zhao, Yong & Dong-dong (2010) use the 5 point Likert's scale in their questionnaire survey. Answers can be given from 1 to 5, where 1 is strongly disagree and where 5 is strongly agree.

The articles of Ayad & Shujun (2013), and Long (2012) show comparable results in which the locals experience tourism as a positive impact and they support tourism development. The locals experience the economic value in new job opportunities (Ayad & Shujun, 2013; Long, 2012) and investment-business opportunities (Long, 2012). The social impact are shown in the positive changes in the cultural identity of the local community (Ayad & Shujun,

2013), and gives possibilities of cultural exchange (Li, Shi-rong, Zhao, Yong & Dong-dong, 2010). The environmental impact of tourist development is visible in noise and soil pollution (Ayad & Shujun, 2013; Long, 2012) as well as traffic congestion and solid waste. (Long, 2012). In the article of Li, Shi-rong, Zhao, Yong & Dong-dong (2010) the result shows that the locals find the economic aspects largely beneficial, the social effects are mainly undesirable and the environmental aspects are mixed. As an overall conclusion one can state that negative consequences are outweighed by the positive benefits.

In the article of Teo & Huang (1995) the success of a conservation project of the Singapore's Civic and Cultural District is investigated by using a questionnaire survey with yes or no questions. The results show that tourists are content with the conservation project. Although the locals feel that "conservation in the district had failed to preserve their heritage because it "museumizes" the site or makes it "elitist" in order to encourage tourism". (Teo & Huang, 1995, p.589) The article of Chang (1999) uses a questionnaire survey with predominantly yes or no questions.

The article argues that "development is the outcome of dynamic interaction between globalizing and localizing tendencies". (Chang, 1999, p.101) The local and global should be integrated and perceived rather as relational than oppositional. As the articles of Ayad and Shujun (2013), Long (2012) and Li, Shi-rong, Zhao, Yong and Dong-dong (2010) show that locals experience tourism as positive. The article of Teo & Huang (1995) says that the locals experience the encouragement of tourism as a negative impact on preserving the heritage. In four of the five articles results and recommendation show that communication towards locals should be improved. The locals should be more involved in decision making processes.

### 3.4 Contingent Valuation

All the articles are examples of the contingent valuation method where respondents are asked about their willingness to pay (WTP). Only the research of Tuan, Seenprachawong and Navrud (2008) is also making a comparison. All the studies use this method to estimate the use value and the economic benefits, or to find a possibility to obtain money for renovating the cultural heritage site. The surveys of these studies took place between 2002 and 2009 in and around heritage sites in Asia. The respondents of to

the studies were visitors, interviewed on the site, or residents interviewed in the city (Dutta, Banerjee & Husain, 2005). The research of the building My Son (Tuan & Navrud, 2008) is an exception. The divided the respondents in more specific groups, foreign and Vietnamese visitors, non-visitors, and local residents, and interviewed them in places about 35 km to 170 away from the heritage site. By using this approach they were exceedingly able to construct policies that could capture all benefits to cultural heritage sites. This study was also used for the comparison study (Tuan, Seenprachawong & Navrud, 2008), and was one of the examples for the CVM in the case of the Nature Park Jiuzhaigou (Xuewang, Jie, Ruizhi, Shi'en & Min, 2011) together with Changdeok Palace (Kim, Wong & Cho, 2005). The type of questions were closed-ended or dichotomous choice supported with the socio-economic characteristics of the respondents. Prinsep Ghat that only is not registered by UNESCO (Dutta, Banerjee & Husain, 2005) used a TOBIT regression model, instead of logit models for WTP, supported with the socio-economic characteristics and lifetime willingness to pay (LWTP) of the respondents. The results showed respondents were willing to pay the current entrance price or even up to 2.5 times higher than that (Kim, Wong & Cho, 2005). The main reason given for not contributing was lack of income. These results show that the tourists and locals appreciate these unique sites that are important for cultural tourism and that helping to improve cultural exchanges will raise the living standards for the local people. With these outcomes and the possible financial gain from the increased admission price, money will now be available to restore and maintain old buildings, benefitting locals and tourists alike.

### 3.5 Comparative case study

The comparative case study method is used in several studies (Cros, Bauer, Lo & Rui, 2005; Tarrafa, Imon & Roders, 2009; Huibin, Marzuki & Razak, 2013) to construct a general model for recommendations for Sustainable Tourism Development (STD) concerning world heritage preservation. By means of a comparison of different heritage sites preferences or improvements for other heritage sites are proposed. For example, Huibin, Marzuki and Razak (2013) studied the protection and development of cultural heritage tourism in Lijiang in China and Penang in Malaysia by means of the 4DGPM model, concerning the broad scope of sustainable tourism

such as the dimensions, goals of the stakeholders, markets, the management and the mechanisms of executing these management plans. The model acted as a basement that could be used for general cultural heritage sites, but the model could also be used for specific recommendations for the cities Penang and Lijiang. For example, the authentic local cultural aspects should be educated with the help of tourist products. Also, the article (Huibin, Marzuki & Razak, 2013) stated that community participation and residential use on heritage sites should be included within the sustainable development of cultural heritage in order to shift the beneficiaries of tourism more to the original inhabitants.

These results are very similar to that of the research of Cros, Bauer, Lo & Rui (2005); namely, to “facilitate conditions leading to a heritage development policy [...] that will keep long-term residents in place (intangible heritage)...” (p. 191). In addition, this research recommends the possibility to create niche products, which one of the cases within this study shows, the Badaling section of the Great Wall in China, in order to create a broader scope for future tourism. Tarrafa, Imon & Roders (2009) also show the importance of local and authentic culture: “their intangible heritage might get lost, even when most part of the tangible heritage remains” (p. 8). Next to this, the research focuses on the implementation of international recommendations into national and local legislations, specifically the classified protection zones.

The aims of the three aforementioned studies are very similar but the researches are slightly different executed; they used different comparative frameworks and focus points. However, the comparative case study method can also be used to compare different case studies in order to create a larger base to validate the data, as the Zube and Pitt (1980) researched the difference in perception of landscapes with or without man-made structures. They used participants with different cultural backgrounds and constructed a questionnaire survey with pictures for two cases: the Connecticut River Valley and the Virgin Islands. “The data from the two studies reported here suggest that significant differences do exist between cultures. Furthermore it seems prudent for heritage resource managers to be aware of such differences” (Zube & Pitt, 1980, pp. 85-86). However, the data from the studies does not explain these differences, although the researchers provide some thoughts on the matter: “environmental experiences can, for example, be strongly influenced by the cultural traditions and the range of opportunities available where one lives” (Zube & Pitt, 1980, p. 85).

Furthermore, the comparative method can also be used to analyze more than two case studies within two countries. The research by Duarte, Cohen and Biocca (2014) does however not have any relevance to our research. Also, the research does not show an elaborated comparative framework and does therefore not correspond with our definition of the comparative method.

#### 4 CONCLUSION

The differences in perception of both original inhabitants and tourists of World Heritage sites can cause a discrepancy in preservation management on a local, national and global level. This article investigated five different research methodologies in order to find certain recommendations for sustainable tourist development for heritage sites in developing countries. The analysis also reflects the appropriateness of the methodology used for the stated research question. All methodologies have corresponding objectives, where several relations and contradictions come to light when comparing the different methodologies.

The contingent valuation method is an exception, having a specific aim in itself. This method strongly implies one field of interest, namely the economic valuation of the heritage. The outcome shows a high Willingness to Pay among both tourists and locals (Kim, Wong & Cho, 2007; Tuan & Navrud, 2008). The willingness to pay (WtP) a higher entrance fee could imply a correlation with appreciation of the heritage. The results expressed a significant positive value of heritage for both locals and tourists which exceeded their economic costs (Kim, Wong & Cho, 2007). The research results allow an estimation of profitable investments in heritage preservation management (Kim, Wong & Cho, 2007).

Three articles of comparative case study method, one of questionnaire survey and two of interview focus on preservation policies of heritage sites. All articles involve the aspect of human perception of the heritage. Authenticity is the key word in the perception of world heritage both in the point of view of locals as of that of tourists. As the interview of Teo & Yeoh (1996) shows, locals often do not recognize their site because of the major renovations and changes of the heritage. The emotional value that is attached to the site reduces. To prevent heritage sites from becoming an open air museum heritage sites should still contain different uses, involving original inhabitants on different levels, such as residential areas within historic city centres. (Jimura, 2010; Tar-

rafa, Imon & Roders, 2009)

As the above mentioned articles approach the human perception on preservation policies of heritage sites, one article of comparative case study and one of observation and informal conversation include articles in which the objectives focus on the human perception of the heritage. The comparative case study carried out by Zube and Pitt (1980) shows that the appreciation for scenic landscapes with or without man-made structures differs for local residents and outsiders. It seems that locals attach certain values, such as emotional or economic, to the man-made structures. This difference in perception is ambivalent and personal (Edensor, 1998; Chang, 1999), but should still be recognized in the management for sustainable heritage development.

The fourth objective approach is the local perception on sustainable tourism development, which occurs in three articles of questionnaire survey and three articles of interview. Mostly, tourists seem to be positive about preservation management and heritage development (Ayad & Shujun, 2013; Long, 2012; Li, Shi-rong, Zhao, Yong & Dong-dong, 2010; Ryan, Chaozhi & Zeng, 2014; Teo & Yeoh 1996). In general, locals have social and economic benefits from tourism's aspects, while environmental effects were mainly undesired (Li, Shi-rong, Zhao, Yong & Dong-dong, 2010). Negative consequences are outweighed by the positive benefits. Although different sites and studies show contradictory results. The beneficiaries of the tourism development, mainly the economic ones, are mostly not distributed equally among the original inhabitants. Whether local inhabitants are positive about tourism development strongly depends on the way the development is executed. Important is to involve local stakeholders (Abu-Khafajah, Rabady & Rababeh, 2014; Huibin, Marzuki & Razak, 2013) and to encourage community participation (Cros, Bauer Lo, & Rui, 2005). Because of the lack of involvement during the restoration and preservation of the heritage, the locals do not feel responsible for the maintenance of heritage sites (Jimura, 2014).

An important argument concluded from the research, and already mentioned above, involves the fact that the tourist, but mostly the locals should be more involved in the heritage preservation project. Three articles of observation and informal conversation and one article of questionnaire survey focusses on the relation between local and global in the heritage management. The observation and informal conversation method shows that differences in perceptions of local and global do not always consult in conflicts, but the local opinion is generally underap-

preciated or ignored (Xiang, 2009). The articles of observation and informal conversation as well as an article of questionnaire survey state that the preservation management of the heritage should be both global as local (Chang, 1999.). The results show that the integration between global and local is essential.

Although all of the methods have objectives that concern the subject of this paper, it is important to consider that some methodologies might be more appropriate to answer the research question. The contingent valuation method gives applicable results, it does not allow any space for personal opinion of the respondent. However, the methodology had several inherent difficulties. Different currencies and cultural background made a comparison between local and tourist valuation difficult, while the WtP-values concerned were not realistic, but hypothetical situations. Therefore a valuation of locals and tourist about their perception of the heritage could be better analysed with face to face interactions, which happens in methods such as questionnaire survey, interview, and observation informal conversation.

Questionnaire survey considered a substantial group of locals and expressed relatively representative opinions. However, the standardized questions, which allow generalization, hide more personal opinions from the respondent. Apart from that, there is a lack of interaction between researcher and the subject, which makes improvisation difficult. Local and tourists replied on fixed questions while other important questions, which could have described the different valuations better, remained obscure.

Interviews with open-ended questions allowed more interaction between researcher and the respondent. Researchers were able to check if the respondent interpreted the questions right, while non-quantifiable valuations could be expressed as well. Disadvantages of the interview method were the very case-specific results. Data obtained from open-ended questions had to be coded and interpreted, before a comparison could be made.

Although observation and informal conversation were often used as secondary data (Su & Wall 2012), observation and conversation added value in some cases. Participants were not pre-selected on their motivation, as in interview and questionnaire survey methodologies, but were approached directly which allows an interaction between the researcher and the respondent and therefore allows the respondent to give a personal focused opinion.

The comparative case studies add value to other, specific methodologies, by its emphasis on the comparison of different cases. Therefore the comparative

case study has already taken into account the deviations in the different cases that influence the results. Questionnaires, such as used in (Zube & Pitt, 1981), can reveal specific details about personal opinions, thoughts and ideas. In addition to this quantitative research method, the comparative framework, such as the one used by Huibin, Marzuki and Razak (2013), tries to combine the data of different stakeholders and aspects of the case studies in order to present a model for heritage preservation management that can be generally implemented.

Although the analysed research papers have different objectives and used different methods, the common ground shows a remarkable resemblance in results. However, the results should still be carefully considered. Differences in time period, method and study field ask for a carefully comparison of these results. As an overall conclusion the necessity of local community participation in heritage management is seen as an important factor, something which is not happening in many places at the current moment. Locals were willing to participate, benefits may be more equally shared and tourists would like more interaction with the local communities. Apart from that, the paper revealed a lack of scientific knowledge. Although differences in tourist and local valuation often were an underlying theme in researches, very few researches were concerned with the topic directly. While tourist valuations were studied, there is still a lack of knowledge concerning local valuations. In order to analyse how the differences in perception between locals and tourists of World Heritage sites should influence the sustainable tourist development with respect to heritage sites, specific qualitative research, such as interviews, observations and surveys should be combined with more generalizing and theorizing methods, such as the comparison method and the Contingent Valuation method. A qualitative start of the research has to ensure the researcher's awareness and involvement in the perceptions in developing countries, which often differ from western perspective. Only after that, quantitative approaches can be consciously deployed to make a further generalization and theorization possible. This could lead to a theoretical framework, in which useful recommendations for the restoration and preservation of World Heritage sites and the development of sustainable heritage tourism both local and global can be divined for a more general implementation.

## REFERENCES

- Abu-Khafajah, S., Rabady, R.A. & Rababeh, S. (2014). Urban heritage 'space' under neoliberal development: a tale of a Jordanian plaza. *International Journal of Heritage Studies*, doi: 10.1080/13527258.2014.945615
- Ayad, T.H.A.E.L & Shujun, Y. (2013). Local people attitudes toward Social, Economic and Environmental Impact of Tourism in Siwa Oasis, *Life of Science Journal*, Retrieved from: <http://www.lifesciencesite.com>
- Chang, T.C. (1999). Local Uniqueness in the Global Village: Heritage Tourism in Singapore. *The Professional Geographer*, 51:1, 91-103. doi: 10.1111/0033-0124.00149
- Cros, H. D., Bauer, T., Lo, C. & Rui, S. (2005). Cultural heritage assets in China as sustainable Tourism Products: Case Studies of the Hutongs and the Huanghua Section of the Great Wall. *Journal of Sustainable Tourism*, 13 (2). pp. 171-194. doi: 10.1080/09669580508668484
- Daengbuppha, J., Hemmington, N. & Wilkes, K. (2006). Using grounded theory to model visitor experiences at heritage sites. *Qualitative Market Research: An International Journal*, 9:4. pp. 367 – 388. doi: 10.1108/13522750610689096
- Duarte, C. R. D. S., Cohen, R. & Biocca, L. (2014). Universal Design as an added value for heritage valorization: the cases of Brazil and Italy. *Assistive Technology Research Series*, 35. pp. 317-326. doi: 10.3233/978-1-61499-403-9-317
- Edensor, T. (1998). Tourists at the Taj, performance and meaning at a symbolic site. *London: Routledge*
- Huibin, X., Marzuki, A., & Razak, A. B. (2013). Conceptualizing a sustainable development model for cultural heritage tourism in Asia. *Theoretical and Empirical Researches in Urban Management*, 8 (1). pp. 51-66. Retrieved from: <http://um.ase.ro/no81/3.pdf>
- Jimura, T. (2010). The impact of world heritage site designation on local communities – A case study of Ogimachi, Shirakawa-mura, Japan. *Elsevier*. doi: 10.1016/j.tourman.2010.02.005
- King, D.M. & Mazzotta, M. (n.d.). Methods, Section 6, *Contingent Valuation Method*. Retrieved from [http://www.ecosystemvaluation.org/contingent\\_valuation.htm#app1](http://www.ecosystemvaluation.org/contingent_valuation.htm#app1).
- Kim, S.S., Wong, K.K.F & Cho, M. (2007). Assessing the economic value of a world heritage site and willingness-to-pay determinants: A case of Changdeok Palace. *Tourism Management*, 28. pp. 317-322. doi: 10.1016/j.tourman.2005.12.024
- Kvale, S. (1996). Interviews: An Introduction to Qualitative Research Interviewing. Thousand Oaks California: *Sage Publications*.
- Li, W., Lin, L., Shi-rong, T., Zhao, Y., Yong, W. & Dong-

- dong, L.(2010). *Residents' attitude to tourism development in ancient village resorts, Case study of World Cultural Heritage of Xidi and Hong Villages*. Retrieved from: [http://download.springer.com/static/pdf/605/art%253A10.1007%252Fs11769-004-0027-x.pdf?auth66=1420454591\\_d22457764ed5fd8bd9f60fdeb47962b&ext=.pdf](http://download.springer.com/static/pdf/605/art%253A10.1007%252Fs11769-004-0027-x.pdf?auth66=1420454591_d22457764ed5fd8bd9f60fdeb47962b&ext=.pdf)
- Long, P.H. (2012). Tourism Impact and Support for Development in Ha Long Bay, Vietnam: *An examination of Resident's Perceptions*. doi: 10.5539/ass.v8n8p28
- Merwe, C.D. van der (2013). The limits of urban heritage tourism in South Africa: The case of Constitution Hill, Johannesburg. *Springer Science + Business Media Dordrecht*. doi: 10.1007/s12132-013-9197-x
- Ryan, C., Chaozhi, Z. & Zeng, D. (2011). The impacts of tourism at a UNESCO heritage site in China – a need for a meta-narrative? The case of the Kaiping Diaolou. *Journal of Sustainable Tourism*, 19:6, 747-765. doi: 10.1080/09669582.2010.544742
- Su, M.M. & Wall, G. (2012). Global–local relationships and governance issues at the Great Wall World Heritage Site, China. *Journal of Sustainable Tourism*, 20:8. pp. 1067-1086. doi: 10.1080/09669582.2012.671330
- Teo, P. & Huang, S. (1995). Tourism and heritage conservation in Singapore, *Elsevier*. Retrieved from: [http://www.researchgate.net/publication/222305365\\_Tourism\\_and\\_heritage\\_conservation\\_in\\_Singapore](http://www.researchgate.net/publication/222305365_Tourism_and_heritage_conservation_in_Singapore)
- Teo, P. & Yeoh, B. (1996). Remaking local heritage for tourism. *Elsevier*. Retrieved from: <http://scddm.quosavl.com/ddm/scopus.jsp>
- Tarraf, A., Imon, S.S. & Roders, A. P. (2009). Tackling tourism-driven development in World Heritage cities: A comparison between Macao, China and Evora, Portugal. In S.S. Imon (Ed.), Conference Paper: Urban Heritage and Tourism: Challenges and Opportunities, (pp. 1-10). *Macao: Institute for Tourism Studies*. Retrieved from: <http://alexandria.tue.nl/openaccess/Metis232091.pdf>
- Trochium, W. (2005). The concise knowledge base, *Cornell University*. Retrieved from: [http://books.google.nl/books/about/Research\\_Methods.html?id=cx9FPwAACAAJ&redir\\_esc=y](http://books.google.nl/books/about/Research_Methods.html?id=cx9FPwAACAAJ&redir_esc=y)
- Xiang, Y. (2009). Global-local Relationships in World Heritage: Mount Taishan, China. *Waterloo: University of Waterloo*. Retrieved from: [https://uwspace.uwaterloo.ca/bitstream/handle/10012/4671/Xiang\\_Yixiao.pdf?sequence=1](https://uwspace.uwaterloo.ca/bitstream/handle/10012/4671/Xiang_Yixiao.pdf?sequence=1)
- Yin, R.K. (2013). Case study research: Design and methods. *Thousand Oaks California: Sage Publications*.
- Zube, E. H. & Pitt, D. G. (1981). Cross-cultural perceptions of scenic and heritage landscapes. *Landscape Plan*, 8. pp. 69-87. Retrieved from:

<http://www.sciencedirect.com.dianus.lib.tue.nl/science/article/pii/0304392481900411>

# The appreciation of the Vinex neighbourhoods

F. Aslan, S. van Hees, F. de Koning, T. Weijs

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** VINEX ('Vierde Nota Ruimtelijke Planning Extra') (1991) contains guidelines and regulations for the construction of new housing development areas in the Netherlands in the period 1995-2005. It did not contain regulations on the spatial quality, which has resulted in a discussion about this from 1994 onwards. Many urban planners, architects and other professionals criticize the liveability of Vinex neighbourhoods. However, several studies show that residents are pretty satisfied with their living environment. This contradiction is the starting point of this paper. The research question is: what is the influence of a research method on the results and conclusion of a study of the appreciation of Vinex neighbourhoods? A clear overview of different views on Vinex might be helpful to determine which aspects of Vinex neighbourhoods should be improved.

The four data collection methods which were selected for this study were literature research, case study, interview and survey. By selecting these methods, a combination was made between qualitative and quantitative research. Of each research method, five reports were selected. An important selection criterion was, besides method, the research question; the study had to have examined the appreciation of Vinex neighbourhoods. By analysing the strengths and weaknesses of each study, it was possible to assess what papers were reliable and representative for a research method.

The different studies and methods had a similar outcome. The residents of Vinex appreciate their living environment, where the professionals are more sceptical. Surveys and interviews are influenced by subjectivity of the respondents and the attitude and interpretation of the researcher. Literature study and case study are research methods to underbuilt further research, but can also stand on their own. In research, a combination of research methods is favourable, so that objectivity and subjectivity are secluded from each other and a general conclusion can evaluate these two aspects.

**KEYWORDS:** *Vierde, Nota, Ruimtelijke, Ordening, Extra*

## 1 INTRODUCTION

The topic of this paper is Vinex ('Vierde Nota Ruimtelijke Ordening Extra'), a quite controversial topic. Vinex, a policy briefing note of the Ministry of VROM (1991), was a continuation of the 'Vierde nota ruimtelijke ordening' (1988) and contains guidelines and regulations for the construction of new housing development areas in the period 1995 – 2005 (De Ruiter, 2011). Provincial governments and municipalities determined the location of these new housing districts, which were needed to accommodate the increasing population of the

Netherlands. The new districts, Vinex neighbourhoods, had to be built according to some regulations and had several objectives (VROM, 2005). First of all, the Vinex neighbourhoods had to be located near existing town centres and endorse existing malls. This would lead to an increase of customers of these malls and prevent vacancy of commercial buildings. Secondly, Vinex districts had to limit the trend of exodus of medium-large Dutch cities. Thirdly, the planned developments would protect open areas by concentration of urbanisation around existing medium-large cities. Finally, Vinex neighbourhoods would limit (car) traffic between home, work and facilities. The prognosis was that the short distances might increase the use of public

transport and slow traffic. Vinex locations were envisioned to focus on wealthier households, leading to vacant houses within existing cities, which would be available for households with a lower income. However, eventually many Vinex districts contain around 30% of social housing (VROM, 2005). A misconception of Vinex locations is that these new, large scale neighbourhoods are only located at the fringe of cities. Around 39% of Vinex has been built on (re) development areas within cities (VROM, 2005). Only districts that were determined by VROM, provincial governments and municipalities and constructed between 1995 and 2005 can be regarded as Vinex neighbourhoods.

The 'Vierde Nota Ruimtelijke Ordening Extra' did not contain guidelines or regulations about the spatial quality of the Vinex neighbourhoods. The responsibility was allocated to sub-national levels of governance such as provinces and municipalities. The execution has led to a discussion about the quality of the districts from 1994 onwards (Lupi, 2008). Many urban planners, architects, and other professionals criticize the liveability of Vinex neighbourhoods. The fact that the Vinex districts should endorse existing malls, has led, according to critics, to desolate neighbourhoods at daytime. The architectural quality is also criticized. The image of the neighbourhoods is, according to critics, monotonous and boring (De Ruiter, 2011). This might be a result of the similar appearance of many dwellings. Besides, the area misses character and a reference to history. Critics state that the uniform dwellings do not match the demands and wishes of residents. Some think that the building density is too low, others think the density is too high. The targets for the use of public transport and slow traffic are not reached, resulting in a car-dominated image of Vinex neighbourhoods. The media and some politicians have also contributed to the negative image of Vinex districts.

This contradicts however with the results of the 'Leefbaarheidsmonitor', which show the satisfaction of the residents of Vinex neighbourhoods, also in comparison to other neighbourhoods (VROM, 2005). Liveability can be defined as 'the satisfaction of residents with the living environment'. It seems more rational when the appreciation of residents dominates the general image of Vinex. The contradiction between the contentment of residents and professionals has been the subject of several studies between 1999 and 2013. These studies have confirmed that residents are mainly positive (Iersel & Marsman, 1999; VROM, 2005; De Vlieger, 2013). If there is critique, it is about the size of the dwellings,

parking and the (amount of) facilities in the vicinity (VROM, 2005). Despite of the positive attitude of residents, it seems as if the perspective of professionals has not changed so far.

This paper will compare different research methods: survey, interview, literature study, and case study. By doing this, it might be possible to determine the influence of different data collection methods on the conclusions. Do the results of the methods differ or correspond? The main research question is: what is the influence of a research method on the results and conclusion of a study of the appreciation of Vinex neighbourhoods? The topic, and subsequently the discussion about quality and appreciation of Vinex, is useful in combination with these research methods, because subjectivity is an important aspect in the discussions about Vinex. Especially research methods like surveys and interviews, but also literature study, are effective to give an overview of the subjective side of Vinex. The opinions among different neighbourhoods can vary, so it is also interesting to review case study as a research method. A clear overview of different views on Vinex might be helpful to determine which aspects of Vinex neighbourhoods should be improved.

The topic Vinex is also interesting for the comparison of different research methods because it is a relatively new topic and discussion. The different studies that will be compared are executed in the same (short) period. This presumably means that the studies respond to similar developments and have used a similar state-of-the-art, making the studies very comparable. In other words, a variable has been equalized.

The next parts of this paper will describe the methodology and the results of the research. Subsequently, an overview will be given of the conclusions. The paper will finish with acknowledgements and references.

## 2 METHODOLOGY

The four data collection methods which were selected for this study were literature research, case study, interview and survey. By selecting these methods, a combination was made between qualitative and quantitative research. Of each research method, five reports were selected. An important selection criterion was, besides method, the research question; the study had to have examined the appreciation of Vinex neighbourhoods. By analysing the strengths and

weaknesses of each study, it was possible to assess what papers were reliable and representative for a research method.

Qualitative research is interpretative and subjective. The aim of qualitative research is investigating motives behind decisions, issues, opinions of various target groups, and responding questions (QSR International, 2014). The qualitative research methods which have been chosen for this paper are literature research, case study and interview. In order to increase the reliability of this paper, the qualitative research was done in combination with a quantitative research method.

Quantitative research is objective and is focused on numbers and numerical data (SCRIBBR, 2014). The aim of quantitative research is, by asking a smaller sample group questions in a structured way, producing a general conclusion of a larger group. The quantitative research method which has been selected for this paper is survey. By using different research methods, several views and opinions can define Vinex districts.

The comparison of the four research methods – literature research, case study, interview, and survey – can determine the influence of data collection methods on the conclusions. The research will analyse the advantages and disadvantages of each method.

The topic Vinex is a relatively new topic and discussion and consequently literature research as a method has a great value in this paper. Initially, it was investigated what had already been written on the topic. Subsequently, it has been determined what has already been published, so that the experiences of predecessors to examine the appreciation and quality of Vinex districts can be used (SCRIBBR, 2014). The implemented papers are: Li (2013), Van Opdorp (2009), Priemus (2010), De Ruiter (2011), and De Vlieger (2013). By using these papers, it might be possible to direct toward in the research field, so the research can be performed even better.

A case study is a research method that examines in detail one or a few cases. The case(s) are examined thoroughly and this resulted in very detailed studies (Hulpbijzonderzoek, 2014). In this method, a very broad field of research is narrowed down to effortless attainable results. For this reason, a few specific cases can be examined. However, it will not answer completely the appreciation and quality of Vinex districts; it will provide some directions. The implemented papers for this method are: Bezemer (2007), Bouwfonds TU Delft (2013), Van de Hof (2006), Van Opdorp (2009), and Tilstra (2011).

Interview as a research method makes it possible to do subjective and interpretive research (SCRIBBR, 2014). An interview usually consists of open questions, and therefore the respondents have the opportunity to respond without fixed answers. However, this method results in many different answers. The implemented papers are: Van Iersel & Marsman (1999), Lupi (2008), Van Opdorp (2009), Padding et al. (2012), and De Vlieger (2013). In addition, by choosing this research method we will investigate the appreciation of Vinex districts. The aim of the interview is to explore motivations and thought about the quality and appreciation of Vinex. This method gives the possibility to request thoroughly and to investigate detailed information (Allesovermarktonderzoek, 2014). However, this resulted in conclusion that cannot generalize for other Vinex districts. Therefore, survey as research method is chosen to equalize the reliability of this paper.

A survey is a set of questions which is given to a large number of people in order to collect information. Research thorough a survey is quantitative; objective and focuses particularly on figures (SCRIBBR, 2014). A survey usually consists of multiple choice questions. The chosen respondents can only choose from fixed answers, and often have insignificant influence on the answers. The implemented papers for this method are: ECORYS Nederland BV. (2006), Lupi (2008), De Ruiter (2011), VROM (2005) and Visscher (2011). This method is quite distinct from interview as research method.

### 3 RESULTS

#### 3.1 Literature

Within the research of the literature it can be noted that there are different implementations of the sources and structures. The sources vary from scientific based samples like articles and rapports (Li, 2013) to newspapers and magazines (Van Opdorp, 2009). Also the objectivity of the writer (Priemus, 2010) contributes in the outcome of the literature research and can form an argumentative article. Nevertheless it could be noted that the outcome of all the articles are more or less the same which will be explained beneath.

The literature research is all about the different approaches of the researchers. One can start with the history of the subject and then evaluate this into the now and the future (De Vlieger, 2013). This creates

a founded base on which recommendations and results can be reflected. This kind of research creates not only a base for itself and eventually a conclusion, but also for further unravelling of the subject, in the form of case studies (Van Oordorp, 2009) or surveys (De Ruiter, 2011).

Next to this, there is research that starts with the research question which is set in the beginning of the article. This can be noted in the argumentative article of Priemus (2010), but also in the articles where the literature research is a research on itself (De Vlieger, 2013). From this research question the researchers can develop different strategies and aspects in their literature review to form the research and come to a conclusion.

The different papers are formed and based on different angles of research. The papers address the appreciation of the Vinex on different aspects, e.g. social economical and demographics (De Ruiter, 2011) or public space (Priemus, 2010) and facilities (Li, 2013). These different angles in the literature studies make it difficult to compare the conclusions of the papers. Nevertheless the conclusions of the five different papers are all in the same direction; it has to be improved for the residents. What the literature can contribute to the researchers is background information so that in the follow up research like surveys, interviews or case studies this information can be specified towards the subject and the research question.

### 3.2 Case study

Within the five researches three different perspectives can be distinguished, the perspective of the residents (Tilstra, 2011 and Osdorp, 2009), of the professional field (Bezemer, 2007 and Van den Hof, 2006) and a direct comparison of the two (Bouwfonds TU Delft, 2013). With the different perspectives the global design of the research is similar but differs in details and focus points. All researches use a combination of literature, observation, interviews, newspapers and surveys. Dependent of the research, the focus shifts between the degree of use of each tool. Interviews and surveys are more important in the researches where the opinion and behaviour of the residents plays a central role. The interviews form the backbone of the research and the information which came forward through these interviews is the main source of information (Tilstra, 2011 and Bouwfonds TU Delft, 2013). When the case is tested to a certain theory (Bezemer, 2007 and Van den Hof, 2006), the focus is shifted away from interviews as a main tool.

In these cases interviews were used as a way to obtain specific information which leads to specific literature. The literature is used to compare theory and the real-life situation. Literature could also be the first tool, whereupon interviews are held (Osdorp, 2009). In this case study literature is used to base a theory; also the value of the phenomenon researched is explored through literature. Interviews are carried out to explore the opinions and thoughts of the residents of the researched phenomenon.

After reading and comparing the five different researches an overall conclusion can be made. The researches that directly reflect the residents show an overall satisfaction about the Vinex neighbourhood (Tilstra, 2011 and Bouwfonds TU Delft, 2013). Where the demands of the residents are not met, dissatisfaction arises. This often comes forward out of a discrepancy between residents and planners and designers. The cases that studied and followed the design process of buildings for a Vinex neighbourhood also conclude this (Bezemer, 2007 and Van den Hof, 2006). Dissatisfaction arises often where specific needs are not taken into account and solutions are copied from one situation to the other. Osdorp (2009) also concludes that ideas of the designer often are not adopted by residents when not made visible enough or do not correspond to the needs of residents.

### 3.3 Interview

Interview as a research method has a great value for the researchers. This method was conducted to get a clear picture of how the respondents, occasionally both residents and planners, think about the Vinex neighbourhood. The comparison of the papers shows, with different objectives, that the various results resemble each other; the residents are generally satisfied with the Vinex district. Interview as a research method has the insecurity, when it is not well organized, to undermine the objectivity. Consequently, several studies do not have solid outcomes.

Firstly, the most deviant in the studies are the quantity of respondents. The quantity differs from 4 people in Padding et al.'s research (2012) to 7769 in Van Iersel & Marsman's research (1999). Also, both interviews were conducted differently. The response of the research by Lupi (2008) was 50%; from that percentage she held 27 in-depth interviews with the respondents. The quantity of the responses can determine the reliability of the result. Whether the quantity of the study of Padding et al. (2012) is adequate, is doubtful. However, the number of

respondents does not only determine the reliability of the studies, also the way of having an interview seems to have influence on the reliability of the researches.

Secondly, all studies have used different interview methods. Padding et al. (2012) have used semi-structured interviews. The researchers have fixed topics, but are able to follow topical trajectories in the conversation. Lupi (2008) held in-depth interviews with the respondents. These methods are ideal to discover ideas and opinions on a particular topic. However, the conclusions cannot be generalized and the researcher may unconsciously influence the respondent.

Thirdly, Padding et al. (2012), Lupi (2008), Van Iersel & Marsman (1999) and De Vlieger (2013) did not have variety in their target groups. In contrast to these studies, Van Opdorp (2009) has been looking for grammatical constructions, metaphors, images and ways of speaking, used by both professionals and residents. By making these uses abstract and keeping multiple interviews on the same topic, the author categorized several respondents within the professionals and residents. However, this could make the study more subjective. The author was aware of this feasible outcome, and therefore there was correlation between the ideas of professional planners and residents.

Finally, all papers had various problem fields. For this reason, it is hard to compare the papers and to make a comparison between the various interview methods. Furthermore, Padding et al. (2012), Lupi (2008) and Van Opdorp (2009) were case studies, so the result of the researches cannot be generalized for other Vinex districts. Besides, some of the studies only focus on certain target groups. This could influence the objectivity of the results. However, in general, the residents are satisfied with the Vinex districts.

### 3.4 Survey

The comparison of the papers which have used survey as research method shows that despite of the implementation of the method, which quite deviates, the results of a few aspects correspond. Survey as a research method is a relatively easy accessible method to measure the opinion of a research population. This results in several studies which are not completely reliable.

The most striking difference in the implementation of the method is the sample size and the response percentage. The sample size varies from (over) 100 people in the research of De Ruiter

(2011) to 3344 people in the research of ECORYS Nederland BV. (2006). However, this research had a response of only 15%, while the response of the research of Lupi (2008) was 49%. A high response percentage contributes to the reliability of a research; however, a minimum sample size is required to validate the results. Whether the sample size of the research of De Ruiter (2011) is large enough, is questionable.

To attain a large response, De Ruiter has limited the survey to 27 multiple choice questions. Lupi (2008) has used another approach to attain a large response, she has visited the respondents twice to receive the completed survey and after that gave a return envelope to the respondents. ECORYS Nederland BV. (2008) has used a third method to attain a large response. After the completion of the survey, the respondents received a lottery ticket. This might have influenced the structure of the sample group; it is not a reflection of the research population anymore. Besides, it might have influenced the mood of the respondents; the results are more positive than the reality.

The five research papers have used different research questions, so it is hard to compare the results and conclusions and conclude what the influence of the different approaches has been. Besides, some of the studies only focus on certain aspects or neighbourhoods. For example, the research of Lupi (2008) focusses on IJburg and the research of Visscher (2011) on Vinex neighbourhoods with rural characteristics. It is hard to determine whether the results and conclusions can be generalized. However, one aspect is similar in several studies: the critique on Vinex of professionals and media is not reflected in the opinion of residents.

## 4 CONCLUSIONS

In this paper the different research methods are explained, these methods are different but comparable on outcome and research.

Within the comparison of literature studies it could be noted that there are different angles of approach: from the scientific approach through articles and papers till the objective approach, the opinion and newspapers. With these different approaches the same outcome can be noticed: the appreciation of the residents and the success of the Vinex. This success and appreciation is derived from the high value architecture, the large plots and the green structures.

The comparison of case studies shows the appreciation of the residents of the area of Vinex. Within this appreciation also dissatisfaction arises, especially when discrepancy arises between the residents of the Vinex neighbourhood and the designers. This concludes that ideas of designers are not adopted by the residents.

The comparison of literature with interviews as research method also shows the appreciation of the residents of the Vinex locations. This research method is about reliability, the quantity of studies and the objectivity or subjectivity of the researcher. The researcher needs to make the abstract correlation between the professional's respondents and the resident's respondents, so that the results are comparable with one another.

When looking at the comparison of the survey research, it can be seen that it has a certain level of measuring the opinion of the research population. The response percentage and the sample size are important variables in this research method. The sample size is important to validate the results, where the response is key to a diverse group and the feasibility of the research. Also in the survey research the appreciation of the Vinex districts of residents is shown, while the professionals have more critique.

When these results are analysed, the outcome of the different researches on the appreciation of the Vinex is the same. The residents appreciate their neighbourhood in the Vinex districts, where the professionals are more sceptic. Interesting to see is that the objective as well as the subjective research had a similar conclusion on the appreciation of the Vinex.

The research question which has been introduced in the introduction is: What is the influence of a research method on the results and conclusion of a study of the appreciation of the Vinex neighbourhood? The results of the different research methods have to be combined to answer this question.

It can be concluded that surveys and interviews are influenced by the degree of subjectivity of the respondents and that this can be an advantage or disadvantage for the researcher. What is clear is that it depends on response of the correspondences towards the interviewer or surveyor, mostly the researcher. The interpretation is definitely a variable within these research methods, in the appreciation of the Vinex neighbourhood it does not affect the outcome though.

The literature study and the case study are usually research methods to underbuilt further research but

can also stand on their own. Literature study is mostly an objective method of collecting information and documenting this. It also shows that in other papers the opinions about the Vinex districts are the same as the outcome of this paper. The case studies show that the appreciation of the Vinex is not only on one location but that this conclusion can be generalized. Also the diversity of the locations that have the same outcome on the appreciation is characteristic for this research.

To conclude, it can be said that the listed researches in this paper all come to the same conclusion: the residents are appreciating the Vinex neighbourhood where the professionals do not share this appreciation. So when doing research, especially when there are people involved which need to express their feeling and thoughts, a combination of the research methods is favourable. So that objectivity (e.g. literature study and case study) and subjectivity (e.g. interviews and surveys) writing are secluded from each other and a general conclusion can evaluate these two writings.

## ACKNOWLEDGEMENTS

This paper research is conceived by means of group work. The students that were involved, F. Aslan, S. van Hees, F. de Koning and T. Weijs had an equal contribution towards the end result. By each selecting and analysing five papers of a research method, the strengths and weaknesses were made clear.

Next to this, the research paper was supported by A. Pereira Roders and A.M. Peters-van den Heuvel. They, by means of tutoring, supported us with their feedback, expertise and last but not least their patience. So many thanks goes out to them. During the lectures also guest speakers made the subject clearer with their insight from the professional work fields or research fields. This helped us get a clearer picture of the differences, strengths and weaknesses of the research methods and what research can contribute towards, for instance, a design. The contribution of tutors, guest speakers and the group work resulted in this research paper.

## REFERENCES

- Bezemer, C. (2007). *Interactieve beleidsvorming bij de inrichting van twee Vinex-locaties*. Rotterdam: Erasmus Universiteit  
Bouwfonds, TU Delft (2013). *Bloemkoolwijken: een uitge*

- kookt concept*. Delft: TU Delft gebiedsontwikkeling.
- ECORYS Nederland BV. (2006). *Kwaliteit en concurrentie, onderzoek naar het effect van concurrentie op de kwaliteit van uitleglocaties*. Rotterdam: ECORYS Nederland BV.
- Hof, R.J.J. van de (2006). *Analysekader en methodologie*. Utrecht: Koninklijk Nederlands Aardrijkskundig genootschap, Nederlandse Geografische studies.
- Iersel, J. van, & Marsman, G. (1999) *Vinex-kwaliteit door de ogen van bewoners*. Amsterdam: De Nederlandse Vereniging van Makelaars o.g. en vastgoeddeskundigen, en: Het Ministerie van VROM.
- Li, C.W. (2013). *Leefbaarheidsvoorzieningen in Vinex-wijk, een onderzoek naar de bijdrage van diverse typen voorzieningen aan de leefbaarheid van Vinex-uitleglocaties*. Eindhoven: Technische Universiteit Eindhoven.
- Lupi, T. (2008). *Buiten wonen in de stad. De place making van IJburg (academic thesis)*. Amsterdam: Universiteit van Amsterdam.
- Opdorp, R. van (2009). *Vinex-ante landschappen*. Wageningen: Wageningen Universiteit en Research centrum Studie Ruimtelijke Planning.
- Padding, R., Loo, F. van, Fessehazion, M., & Oostrik, K., (2012). *De rol van sociale status en cohesie. Comparatief onderzoek tussen vinex- en themawijken*. Generationcity.
- Priemus, H. (2010). *Hoe verder na Vinex en Nota Ruimte?* Amsterdam: Faculteit der Maatschappij en gedragswetenschappen en UvA.
- Ruiter, P.J. de (2011). *Is er toekomst voor de vinex?* Utrecht: Saxion Hogeschool & Hogeschool Utrecht.
- Tilstra, T. (2011). *De openbare ruimte ontrafeld*. Utrecht: Universiteit Utrecht, PLAN Terra B.V.
- Visscher, R. (2011). *Dorps wonen stedelijk leven*. Utrecht: Universiteit Utrecht.
- Vlieger, B. de (2013). *Visie op VINEX. De rol van het VINEX-beleid in de ruimtelijke ordening van Nederland en adaptatievoorstellen voor een VINEX-wijk (masterproef)*. Gent: Sint Lucas Architectuur.
- VROM (2005). *Evaluatie Verstedelijking VINEX 1995 tot 2005*. Den Haag: ministerie van VROM.
- Alles over marktonderzoek. (2014). *Kwalitatief onderzoek*. Consulted on January 4, 2015, from <http://www.allesovermarktonderzoek.nl/onderzoeken/thedee/n/kwalitatief-onderzoek>
- Mander, M. (2014, September 3). *Hoe doe je literatuuronderzoek?* Consulted on January 4, 2015, from <https://www.scribbr.nl/scriptie-structuur/hoe-doe-je-literatuuronderzoek/>
- Mander, M. (2014, October 22). *Interview & enquête in je scriptie*. Consulted on January 4, 2015, from <https://www.scribbr.nl/onderzoeksmethoden/interview-en-quete-in-je-scriptie/>
- Mander, M. (2014, August 13). *Kwalitatief vs. kwantitatief onderzoek*. Consulted on January 4, 2015, from <https://www.scribbr.nl/onderzoeksmethoden/kwalitatief-vs-kwantitatief-onderzoek/>
- QSR International. (2014). *What is Qualitative Research?* Consulted on January 4, 2015, from <http://www.qsrinternational.com/what-is-qualitative-research.aspx>
- Zee, van der Foeke. (2014). *Casestudie*. Consulted on January 4, 2015, from <http://www.hulpbijonderzoek.nl/casestudie/>

**Session 2: Society**

# We make the city, but which methods do we use?

Which method(s) can be most successful in investigating bottom up urbanism?

T.F. van Hoeve, A.H.J. Janssen, M.J.L. Kanters, E. Lubbers, J.M. Sowka

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Large organisations and systems regulate the basic services without our direct involvement. Houses are obligated to networks of gas, water, electricity and linked to the sewage system. This made life very easy. But, what will happen if something goes wrong and there is temporarily no power, water, food or waste processing? The vulnerability of these linked systems and the dependency on them are a concern (Moet, 2005).

Although lots of cities in western societies are majorly developed and maintained by top-down planning, the inhabitants of cities are increasingly taking matters in their own hands in shaping their own urban environment. The wide spectrum of processes that are involved in the making of urbanity without an overarching government are considered bottom-up urbanism. The main aim of this research is to investigate and compare different research methods regarding bottom up urbanism. Through the inductive process of analysing exemplary methods a broader methodology within the field of bottom up urbanism will be identified.

Bottom-up urbanism initiatives are often small-scale and case specific. Because of this, a majority of the research that has been conducted in the field of bottom-up urbanism has been done through case studies. Case studies are particularly useful when large samples of similar participants are unavailable. Observations have proven to be successful in researching the existence and characteristics of social activity and behaviour. Where observations mainly focus on social activity and behaviour, interviews can be used to gain insight into people's opinions and experiences. Both methods of interview and observation carry a risk of subjectivity and are dependent on the ability of the researcher to interpret the derived data. It is therefore recommended to extend these qualitative research methods with quantitative methods. Surveys can be helpful in gathering data in a more structured way than through interviews. The method of Geographic Information System (GIS) mapping can be very useful in investigating the perception, behaviour and desires of the inhabitants in a neighbourhood or city.

**KEYWORDS:** *Bottom up urbanism, Case study, interview, Survey, Mapping, Observation*

## 1 INTRODUCTION

Although lots of cities in western societies are majorly developed and maintained by top-down planning, the inhabitants of cities are increasingly taking matters in their own hands in shaping their own urban environment. The wide spectrum of processes that are involved in the making of urbanity without an overarching government are considered bottom-

up urbanism. The idea that inhabitants of a society are directly involved in the development of their environment is as old as indigenous settlements. However, in an urban context a lot of these processes have been regulated by governments or commodified by large organisations. Leaving the inhabitants dependent on top-down decision making and decreasing their involvement to a minimum. Because the world-wide trend of rapid urbanisation and globalisation, the planning, maintenance, and servicing of fast growing cities is becoming increasingly com-

plex, at the same time complicating their democratic processes. Together with natural disasters that pressure the safety of cities, organizations and governments are increasingly unable to meet the needs of its population. Leaving their inhabitants vulnerable (Klein, 2014). Bottom-up urbanism initiatives allow people to participate in addressing and solving their urban challenges. Bottom-up urbanism can change the way how our cities are planned, conceived, built, inhabited and managed.

An example of the implementation of bottom-up urbanism is the Danish island of Samsø. Samsø is already completely self-sufficient in their energy supply, through measures initiated by the people of the island. Another example is the Ecovillage movement that has developed ways of living that are more ecologically responsible without an overarching government. Examples of realised Ecovillage projects can be found in Findhorn in Scotland and Munksogaard in Denmark (Jackson, 2004). Another example of bottom-up urbanism, on the other side of the spectrum, is the making of public space which happened during the Occupy Wallstreet movement in Zuccotti Park, New York in 2011. By occupying a privately owned space people created again a public space for public discourse in the form of demonstration (Massey & Snyder, 2014). Guerilla gardeners are creating public gardens for the public to enjoy and enriching the appearance of their own neighbourhood. Sometimes they even produce food for their community (Adams & Hardman, 2013). Bottom-up urbanism could also be the different use of urban space that was not intended by its design. Which can results in a bottom-up reinterpretation of urban use of spaces that was considered leftover from the top-down perspective (Franck, 2011).

Along with the rise of the phenomenon of bottom-up urbanism a field of study and discussion has developed. However, due to the many actors and wide manifestations of the phenomenon the relation between research and application is not always clear. This paper aims to give insight into how to conduct research in the field of bottom-up urbanism in order to describe the phenomenon correctly for future city makers: inhabitants, designers and policy makers. Multiple research methods can be applied to achieve this, but not every method is equally successful. In this paper a selection of research methods is analysed to describe bottom-up urbanism, as a base for professionals as designers and policy makers to take the phenomenon into account. And for inhabitants to keep participating in shaping their own environment. It creates an overview of how research is conducted in the broad field of bottom-up urbanism. Strengths

and weaknesses are analysed, aiming to identify a broader methodology which describes the phenomenon best. In other words, this paper tries to answer the question: Which method(s) can be most successful in investigating bottom-up urbanism?

## 2 METHODOLOGY

In order to conduct research into research methods concerning bottom-up urbanism a method is needed. To collect data five researchers identified five different methods applied within the field of bottom-up urbanism. These methods are the following: 1. qualitative case study research 2. qualitative research through observation 3. qualitative research through interviews 4. quantitative research through surveys 5. quantitative research through GIS mapping. Subsequently five papers on research in bottom-up urbanism are selected for each of the identified methods, resulting into a total of 25 papers analysed.

The research performed is a multiple criteria evaluation with a qualitative nature. Each researcher analyses five papers on a specific method and implements the findings within a literature grid. In the literature grid all the findings of the different papers are collected together with the limitations of each analysed method. By putting the findings together returning aspects within the different papers can be identified and evaluated. Hereby, important/decisive criteria and less important criteria are acknowledged for each researched method. By creating the literature grid with all 25 research papers the potential and limitations of a certain method in relation to its research objective can be found (Yacobucci, 2012).

Using multiple criteria evaluation many complex relations can be identified through observations of the researcher. The research performed tries to determine the success of the specific research method. This can be dependent on various factors. A lot of potential relationships might be overlooked when the research was performed starting out with a too specific perspective.

A demerit of multiple-criteria evaluation is inherent to the qualitative nature of the research. Different phenomena identified by the researcher are not objective. The researcher is interacting with what is observed and could be influenced by the researchers associations. This could be reflected in his findings. Each of the five researchers has its own interaction with the research material. This results in multiple perspectives and a polemic result.

*Grassroots = movement driven by community's politics*

*Open data = data which is freely available to everyone for use without restrictions*

*Community empowerment = process of communities to increase control over their lives*

*Interim use = the temporary activation of vacant land or buildings with no foreseeable development demand*

*Homesteading = transferring publicly-owned, abandoned property to individuals or families in exchange for commitments to repair, occupy and maintain the property*

*Leftover spaces = urban spaces without a specific use intended by its designers*

### 3 RESULTS

#### 3.1 Qualitative case study research

Bottom-up urbanism often involves community lead initiatives or individual actions. Qualitative case study research is a valuable method of research since it tends to collect mainly qualitative data about one object. Because bottom-up initiatives often arise from social discontent, interviews are useful to first gain insight in people's motivations to become involved in these initiatives.

How do these micro-spatial urban projects reshape the urban space? Through a case study Iveson (2013) finds out that individual projects will only give birth to a more democratic city if we can find a way to politicise them. Seyfang (2009) argues that recognising the innovative nature of green niches at the policy level could lead to new approaches to governance of bottom-up community action for sustainable development. Bremer & Bhuiyan (2014) offer recommendations for integrating self-help approaches into government-led development plans. In these three articles the case study is a useful method since it focuses on how residents have organised themselves. Iveson (2013), Seyfang (2009) and Bremer & Bhuiyan (2014) all argue that bottom-up urbanism needs to be politicised so it can lead to new approaches. Viewing bottom-up as a strategic niche with aim to influence a wider society, it is clear that it faces significant challenges in diffusing its ideas and practices beyond the niche. The model is not necessarily suitable for scaling up or wide-

spread replication because the collected data cannot necessarily be generalised to a wider population.

The arguments for and against concepts and practices of new urbanism that have emerged in the USA are set out and discussed in the context of Christchurch, New Zealand (Winstanley, Thorns & Perkins, 2003). Since there is only one study object it is relatively easy to make an interpretation. Silver, Scott & Kazepov (2010) compare different case studies to examine empirical cases of inclusionary participation of 'ordinary' residents from cities throughout the world. Case studies from Belfast, Berlin, Durban, Philadelphia and Sao Paulo work very well to illustrate the approach and provide insight into the urban as a social laboratory in which other scales of social life and multiple ways to perform democracy are constructed. Case studies are particularly useful when large samples of similar participants are unavailable. Within case studies, other qualitative and quantitative methods can be used to collect data.

#### 3.2 Qualitative research through observation

The method of observation is a powerful method to research human behaviour and activity. This is especially helpful in the field of bottom-up urbanism where processes and actors are not always defined in advance. Through the method of observation, activities or behaviour in relation to space can be identified. The observer can describe and categorize their characteristics, such as: frequency, location, duration, type of use and user groups. This results in a powerful description of the social mechanisms through which bottom-up urbanism arises. For instance, the social-mechanism of: the interrelation of the virtual realm and the physical realm in the making of bottom-up public space (Massey & Snyder, 2014), the course of action in guerrilla gardening and the triggering of a public response (Adams & Hardman, 2013). The appropriation of leftover spaces with use that is unintended by its design (Franck, 2011). Although observation is a powerful research method to gain insight in the social mechanisms through which bottom-up urbanism manifests itself, the motivations and intentions for certain behaviour and activity remain speculative. Therefore, in some of the researched papers observation is combined with qualitative interviews.

In researching the Ecovillage Movement observation is used to identify the different architectural modifi-

cations in the village that aim to fulfil the ecological ambitions of the movement (Jackson, 2004). Although the observations do elaborate on the state of the art when it comes to the modifications, without quantification it is difficult to evaluate their potential.

In the ethnographic research concerning village transformations in China observation is employed along four socio-spatial dimensions: scale, territory, networks and temporality. Observations have been successful in showing the existence of a phenomenon along these four dimensions: what at first seemed unplanned begins to take on aspects of the planned; what may have appeared self-evidently planned is increasingly characterised by spontaneity and unpredictability (Smith, 2014). This concludes that in this case bottom-up and top-down are not mutually exclusive. But for further elaboration on the nature of the phenomenon other research methods are needed. Actually in every case where observation is used there is a risk for subjectivity, due to the singular perspective of the observer and its ability to interpret what is observed.

### *3.3 Qualitative research through interviews*

Bottom-up urbanism often involves initiatives lead by small groups of people. Conducting interviews with people directly involved in these initiatives can provide insight into their drives and motives. Kirby (2003) explores people's motivations to get involved in an Ecovillage project in Ithaca, US. Through interpretation of these interviews the writer defines five forms of connectedness which individuals need or desire as a motivating force in the decision to move to the ecovillage. Because this interpretation is highly subjective and only based on data from the interviews, the credibility of the drawn conclusion is questionable.

In the search for a new analytical category of DIY urban design, Douglas (2014) complements the information derived from interviews with background research on participants, photo-ethnography and observations. By doing so, the information derived from the interviews is contextualised.

Because many forms of bottom-up urbanism, like homesteading and interim use, are highly dependent on government policies, conducting interviews with local authorities can provide great insight in the position of governments towards bottom-up urbanism initiatives. Through interviews with officers selected from institutions that play relevant roles in urban

development and housing provision in Jos, Nigeria, (Daniel, 2014) key issues that influence the outcomes of local and community driven development projects have been examined. However, because the research only considers information derived from interviews with the authorities, and excludes the initiators of the projects, the research has a somewhat unilateral outcome.

Blumner (2006) combines interviews with users, city administrators, researchers and architecture and planning consultants in order to gain a broad view into the concept of interim use. However, the researcher only considers people who have a positive attitude towards interim use and plead for changes in governmental policies towards interim use. Because of this, the conclusion, in which the researcher makes recommendations to better support interim use, is only based on opinions of congenial people.

A unilateral outcome can be avoided by investigating both successful and discontinued bottom-up urbanism schemes (Crookes & Greenhalgh, 2013). However, by solely using interviews as a research method, it remains impossible to draw concrete conclusions. Crookes and Greenhalgh (2013) recommend further qualitative research into the topic.

### *3.4 Quantitative research through surveys*

Through quantitative research through surveys, multiple findings on bottom-up urbanism are found. All used articles present one or multiple surveys which use a population and sampling of individual units as method to generate an outcome of the, in variable ways, collected data.

The intentions of conducting a survey seem to be dual; providing for a pattern or for a trend. The first intention, a pattern, is to investigate if there is a relation between several parts or the lack of relationship between those parts. A correlation found in the theme of bottom-up urbanism is the dependency of bottom-up on top-down. Governmental influences are needed to provide for the time to participate in bottom-up urban projects (Page, 2002), or for the stimulation of grassroots participation (Young, 2013). A lack of relationship is found in the influence of grassroots participation on urban communal space (Zhu, 2014). If there is no significant correlation found in the survey-data it does not mean that there is no relationship. Sometimes the deficiency is in the survey itself, in the case of Zhu (2014) the questions asked were not specific enough and multi-interpretable.

A second intention, the trends, is the ability to make a prediction on the basis of the outcome of the survey. By comparing the outcome of multiple surveys, a prediction can be made of what a possible trend is, which can be used in future developments. Predictions are useful in foreseeing the participation in grassroots (Holloway, Martin, 2003), and their influence on the built environment (Brown, Perkins, 1996).

The reliability and the significance of a survey are important factors for reviewing the empirical value. If the significance of the survey cannot be verified, the outcome is not statistically reliable, but by interpreting the outcome the gathered information can be used to constitute an advice (Holloway, Martin, 2003) (Young, 2013) (Zhu, 2014).

External research methods, mainly qualitative, are useful for elaborating on the survey or to provide for explanatory reasons causing relations or patterns.

### 3.5 *Quantitative research through GIS mapping*

Mapping is a research method which has been used for a long time, however it does not always fit the fast and continually changing world anymore. The use of GIS can alter the traditional way of mapping in such a way that it can still be a very useful research method. It brings the social sciences together with spatial urban planning. The spatial patterns of human behaviour can be modelled and predicted with the use of mathematics and computer-based logic (Aitken, Michel, 1995). GIS is often used in combination with surveys to collect the data input needed (Abbott, 2002). It is a research method which can be used in two ways, namely by using it as a tool to deepen our understanding of residents' perception of local issues and preferences (Talen, 2007) and thereby facilitating participation in neighbourhood planning. A new form of GIS, namely BUGIS (bottom-up GIS) is created especially for this purpose (Talen, 2007). It can be a way to empower the community through detailed information which GIS can provide about the community (Abbott, 2002). Secondly, it can be used to find spatial patterns and links in bottom-up urbanism (Lüscher, Burghardt, Weibel, 2007) (Abbott, 2002). However, there are also some limitations and pitfalls in the use of GIS. One of the limitations is the relative high costs attached to the system (Talen, 2007). Secondly, there is some extend of technical knowledge which is required. Therefore, GIS facilitators are of-

ten needed to guide the process and to prepare the data input. Consequently, a bias could emerge because these professionals could influence the outcome of the research (Talen, 2007) (Aitken, Michel, 1995) and it creates unequal power relation between those professionals and 'normal' citizens (Ghose, 2010).

GIS can, within the topic of bottom-up urbanism, best be used to find spatial patterns. There is potential for using it to investigate the wishes and desires from inhabitants, but this still needs some further development before it can be widely used for that purpose.

## 4 CONCLUSION

Bottom-up urbanism initiatives are often small-scale and case specific. Because of this, a majority of the research that has been conducted in the field of bottom-up urbanism has been done in the way of case studies. Case studies are particularly useful when large samples of similar participants are unavailable. A disadvantage of this type of research is the fact that the collected data cannot necessarily be generalised to a wider population. Within case studies, other qualitative and quantitative methods can be used to collect data.

Observations and interviews are examples of qualitative research methods that are often used within the field of bottom-up urbanism. Observations have proven to be successful in researching the existence and characteristics of social activity and behaviour. Through observations, researchers can describe the social mechanisms through which bottom-up urbanism manifests itself. This is especially helpful when actors and phenomena are not clearly identified at the start of the research as is often the case when investigating bottom-up urbanism. Where observations mainly focus on social activity and behaviour, interviews can be used to gain insight into people's opinions and experiences. Because bottom-up initiatives often arise from social discontent, interviews are particularly useful to gain insight in people's motivations to get involved in these initiatives. Both methods of interview and observation carry a risk of subjectivity and are dependent on the ability of the researcher to interpret the derived data. It is therefore recommended to extend these qualitative research methods with quantitative methods. Surveys can be helpful in gathering data in a more structured way than through interviews. By using standardised

questions, results can easily be structured and compared. Surveys are generally used to investigate either patterns or trends which can lead to future predictions on future developments in bottom-up urbanism. Data derived from surveys can subsequently be visualised and further analysed by using GIS as a mapping tool. With regard to bottom-up urbanism, GIS is a powerful tool to find spatial patterns and has potential in investigating people's wishes and desires. However, further development of the method is needed to fully use its potential in this field.

There is no singular answer to the question *which methods can be most successful in investigating bottom-up urbanism*. As expected, each method has its own features and qualities. It is therefore recommended to combine qualitative with quantitative methods. Qualitative methods like observations and interviews complement each other and can often serve as a good starting point for a research. Quantitative methods like survey and GIS mapping can be used to verify assumptions and formulate future predictions.

Bottom-up urbanism is a broad subject that manifests itself in different ways, it is therefore important to explore the possibilities of different methods and the way they can complement each other.

## ACKNOWLEDGEMENTS

We would like to express our special gratitude to dr. Sukanya Krishnamurthy and ir. Daan Lammers for their patient guidance, enthusiastic encouragement and useful critiques. Furthermore we would like to thank the other teachers of the course *Research in Urbanism and Architecture*; dr. Ana Pereira Roders and ir. Anne-Marie Peters, as well the guest lecturers and organisers of the *Living Cities* conference held on January 13, 2015 at the Eindhoven University of Technology.

Finally we would like to thank the University for providing us with the means to conduct our research.

## REFERENCES

- Abbott, J., 2002. The use of GIS in informal settlement upgrading: its role and impact on the community and on local government. *Habitat International*, Issue 27, pp. 575-593.
- Adams, D. & Hardman, 2013. M. Observing Guerrillas in the Wild: Reinterpreting Practices of Urban Guerrilla Gardening. *Urban Studies*, pp. 1-17.
- Aitken, S. C. & Michel, S. M., 1995. Who Contrives the "Real" in GIS?. *Cartography and Geographic Information Systems*, Issue 22, pp. 17-29.
- Blummer, N., 2006. Planning for the Unplanned: Tools and Techniques for INterim Use in Germany and the United States. *Occasional papers*, pp. 1-31.
- Bremer, J. & Bhuiyan, S. H., 2014. Community-led infrastructure development in informal areas in urban Egypt: A case study. *Habitat International* 44, pp. 258-267.
- Brown, B., Perkins, D., 1996. The ecology of empowerment: predicting participation in community organizations. *Journal of Social Issues*, volume 52, no.1, pp. 81 -110.
- Crookes, L. & Greenhalgh, W., 2013. DIY regeneration? Turning empty houses into homes through homesteading. <http://www.emptyhomes.com/wp-content/uploads/2012/07/DIY-regeneration-Homesteading.pdf> consulted on 26-11-2014.
- Daniel, M. M., 2014. Local and Community Driven Development Approach in the provision of basic facilities in Jos, Nigeria. *Elsevier*, Issue 39.
- Douglas, G. C., 2014. Do-It-Yourself Urban Design: The Social Practice of Informal "Improvement" Through Unauthorized Alteration. *City & Community*, Issue 13.
- Franck, K. A., 2011. Occupying the edge and the underneath. In T. Hauck, R.Keller, & V. Kleinekort (Eds.), *Infrastructure urbanism: Addressing the in-between*. pp. 117-129.
- Ghose, R., 2010. Community Participation, Spatial Knowledge Production, and GIS Use in Inner-City Revitalization. *Journal of Urban Technology*, Issue 10, pp. 39-60.
- Iveson, K., 2013. Cities within the City: Do-It-Yourself Urbanism and the Right to the City. *International Journal of Urban and Regional Research*, Volume 37.3, pp. 941-956.
- Jackson, R., 2004. The Ecovillage Movement. *Permaculture magazine*, Issue 40.
- Kirby, A., 2003. Redefining social and environmental relations at the ecovillage at Ithaca: A case Study. *Journal of environmental psychology*, Issue 23, pp. 323-332.
- Klein, N., 2014. *This changes everything: Capitalism vs. The Climate*. New York: Simon & Schuster
- Lüscher, P., Burghardt, D. & Weibel, R., 2007. Ontology-driven Enrichment of Spatial Databases. *Workshop on Generalisation and Multiple Representation*, Issue 2, pp. 1-10.
- Martin, D.G., Holloway, S.R., 2003. Organizing diversity: scales of demographic change and neighborhood organizing in St. Paul, MN. *Environment and Planning A* 2005, volume 37, pp. 1091-1112.
- Massey, J. & Snyder, B., 2014. Occupying Wallstreet: Places and Spaces of Political Action. *Places Journal*, pp. 1-4.
- Moet, D., 2005. Autarkie: Zelfvoorzienende woonwerkland schappen. pp. 12.
- Page, B., 2002. Urban agriculture in Cameroon: an anti-politics machine in the making?. *Geoforum*, Issue 33, pp. 41-54.
- Seyfang, G., 2009. Community action for sustainable housing: Building low-carbon future. *Elsevier*, Energy Policy, pp. 7 624-7633.
- Silver, H., Scott, A. & Kazepov, Y., 2010. Participation in Urban Contention and Deliberation. *International Journal of Urban and Regional Research*, Volume 34.3, pp. 453-477.
- Smith, N.R., 2014. Beyond top-down/bottom-up: Village transformation on China's urban edge. *Cities* 41, pp. 209-220.
- Talen, E., 2007. Bottom-Up GIS, A New Tool for Individual

- and Group Expression in Participatory Planning. *Journal of the American Planning Association*, Issue 66, pp. 279-294.
- Winstanley, A., Thorns, D. C. & Perkins, H. C., 2003. Nostalgia, Community and New Housing Developments: A Critique of New Urbanism Incorporating a New Zealand Perspective. *Urban Policy and Research*, Issue 21, pp. 175-189.
- Yacobucci, P. R. (2012). Introducing the Literature Grid: Helping Undergraduates Consistently Produce Quality Literature Reviews. In *APSA 2012 Teaching & Learning Conference Paper*.
- Young, R.F., 2013. Mainstreaming urban ecosystems services: a national survey of municipal foresters. *Urban Ecosyst* 2013, volume 16, pp. 703-722.
- Zhu, Y., 2014. Toward community engagement: Can the built environment help? Grassroots participation and communal space in Chinese urban communities. *Habitat International*, Issue 46, pp. 44-53.

# The influence of surveillance on public space.

J. Bosch, H. Bouwhuis, L. Roosenboom, K. Schrauwen & U. Temel

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Over the past few decades, surveillance has become an increasingly common feature in public space. The question arises if, and in what way the intrinsic qualities and the publicness of public space are influenced by the application of surveillance. The aim of this research is to explore the ways in which the influence of surveillance in public space can be qualified as well as quantified. To that end, five different types of research methods have been reviewed within the framework of the research topic. When comparing the different methods, it becomes apparent that each method brings its own use to the table. Where statistics use existing data, observational research and surveys as well as interviews collect their own data. Experiments require an additional method to collect data. Surveys and interviews operate in the realm of personal opinions, whereas observations and experiments focus on actual behaviour. When data is collected using for instance observations or surveys, statistics can be deployed to come to conclusions.

**KEYWORDS:** *Surveillance, Public space, Safety, Defensible Space, CCTV*

## 1 INTRODUCTION

Over the past few decades, surveillance has become an increasingly common feature in public space. Various strategies of surveillance exist and technological developments such as closed circuit television (CCTV), drones and facial recognition software are rapidly emerging. These strategies threaten to fundamentally reshape our expectations of public space. The question arises if, and in what way the intrinsic qualities and the publicness of public space are influenced by the application of surveillance. More and more, the ubiquity of surveillance is being noticed and questioned by the users of public space and a certain tension between authority and the right to privacy arises. In New York for instance, a small group of inhabitants made it their point to record and map the locations of surveillance cameras and to raise questions about the infringement of their right to anonymity and freedom.

The aim of this research is to explore the ways in which the influence of surveillance in public space can be qualified as well as quantified. To that end, five different types of research methods have been studied within the framework of the research topic.

Because perception and social construct play a large role in both the public space and the surveillance of it, it is therefore in itself a subject best captured by social science.

*“The object of the social sciences is man, not as a product of nature but as both the creature and the creator of history in and through which his individuality and freedom of choice manifest themselves”,* Hans Morgenthau. (Gerring, 2011)

The methods studied should focus on man, in relation to the spatiality of the public realm. In hypothesis, since both surveys and interviews focus on finding opinions, these methods will be interesting for this research topic. Because of the spatial aspect of public space, Experiments and observational research are also expected to be a useful addition. Statistical research is studied to learn how valid data is used to underpin findings.

The methodologies used to study the different types of research are described in the following chapter. The different approaches, limitations and findings of all research examined will be synthesized and compared in the body of the report. In the conclusion, the different research methods will be compared and cross-related. Their different contribution to finding an answer to a research question will be examined.

The limitations of this review and recommendations for further research are also discussed.

## 2 METHODOLOGY

This study is focused on the methods which are conventionally used to examine our research topic. Therefore an organized set of methods is chosen, which are commonly used with social ethical research questions. The methods reviewed are: statistical research, experiments, surveys, qualitative interviews and observational research. Twenty-five different studies, five of each method, have been collected using databases as Scopus, Google Scholar and other open-access websites with published academic research of our topic. The sources are critically reviewed to examine how data is collected or generated and, how it was analysed.

To study the sources, a literature grid is used. In the literature grid we summarize, synthesize and describe the key sources. These different actions are divided in several specific conceptual categories. With all the categories the literature grid makes a recap of the important information of the sources which is used to generate the main data for our research. This data is presented in the following chapters.

## 3 RESULTS

### 3.1 *Experimental research*

Experimental research on the effects of surveillance on public space is aimed to examine possible causality between variables. The more direct, positive effect of surveillance on pro-social behaviour and the more indirect effect of the perception of surveillance on the experience of public space are tested by means of the following experiments.

Bateson et al. (2013) have conducted an experiment on the influence of the feeling of being watched. The results teach us that part of the effects of surveillance in public space is due to the underlying feeling of being watched, apart from knowing to actually be watched. A side effect of this feeling of being watched is addressed by Williams and Ahmed (2009). It is made plausible that the visible presence of CCTV cameras enhances the degree of negative stereotyping of others. Caplan and Kennedy (2009) add to the research on CCTV cameras by finding the causality between the specific placement in space of

surveillance cameras and the effects on crime rates. On the other hand, experiments such as Painter's (1997) and Newman's (1996) prove the hypothesis of creating defensible space as a crime-deterrent. By spatial interventions such as improved street lighting, the public space becomes more susceptible to natural, social surveillance. This in turn results in a safer public realm. Note that Painter and Newman examine the effects of a different type of surveillance than Williams & Ahmed and Bateson et al., namely spatially induced social control instead of CCTV cameras.

A myriad of approaches are possible when experimenting, but experiments usually contain the following features in order to secure conclusive evidence on causality.

- The use of a test population/area and a control population/area
- Randomization of the population
- Minimisation of the influences of outside events on the experiment
- The researcher decides which group is exposed to the intervention and what this intervention includes
- Pre-test (baseline) and post-test

When an experiment does not meet the five before mentioned criteria, it is called a quasi-experiment. When researching the public space, the total exclusion of outside influence is impossible. The social aspect makes it nearly impossible to conduct an experiment with the same internal validity as a pure laboratory experiment. Newman's (1996) form of natural experimentation uses interventions and data collection that are based on personal experience and knowledge. Painter (1997) uses a similar method, but in a much more controlled way. The spatial interventions used are more easily quantifiable, namely improved street lighting. In contrast to Newman's research, carefully selected control areas have been used to secure validity. Painter uses surveys to examine the effects of the experiment instead of using official crime data. Also, the study resembles a double-blind clinical trial, since neither respondents nor interviewers knew about its purpose. Newman's as well as Painter's findings yield a qualitative illustration of the effects of certain concrete design interventions on crime. However, the external validity can pose a limitation to the studies. The findings may be geographically dependent and not valid in different locations than the test site. Bateson et al. (2013) also take the five criteria of validity very seriously, using control areas and random assignment of subjects to secure the validity. Furthermore, the generation of equal testing circumstances while var-

ying environmental conditions is contributory to the validity. This way, one causality is tested at a time, and the (non-)additivity of factors can be described. The data was recorded by means of observation. Williams & Ahmed (2009) tried to achieve a controlled experiment by using pictures of public space and surveys instead of the actual situation and observation. While this seemingly ensures an even higher level of validity than for instance Painter's research, any methodology that employs visual images may be criticized on the basis of stimuli equivalence. The camera in the photos could be interpreted by some as another urban equipment not being a camera. This way, novelty, interest and distraction as competing explanations for the effect can threaten the validity of the experiment. Caplan and Kennedy (2009) did not use any control groups and used official crime rates to collect data about the amount of crimes committed before and after the placement of cameras. Certain affairs are not taken into account this way, such as fear of crime or unreported crime. No control areas have been used, ignoring the possible effects of crime displacement.

### 3.2 Observation

The general aim of the observations reviewed is to disclaim or confirm findings from previous observations. Therefore the hypotheses are focused on the findings and conclusions from previous observations. The question asked by Lomell (2004) is a typical example of it; "Has open street CCTV in Norway contributed to a commercialization of public space such as the British literature describes, by excluding non-consumers from the area where surveillance is used?"

The approach varies and depends on the question that is asked. The general approach is aimed to find out what people or actors actually do in a specific situation rather than what they claim they would do. Secondly it considers the design features of urban public space, focusing on people's activities and various forms of use (Rasouli, 2013).

More control over urban space by private interest (Cybriwsky, 1999) is one of the key findings from the observation. Cybriwsky does not state anything about the effect of this phenomenon in his findings. The privatization of public space and social exclusion based on general appearances of unwanted groups (Saetnan, Lomell and Wiecek, 2004) is such an effect. Exclusionary practices vary across sites, and the more the systems are operated and influenced by private capital interest, the more exclusionary practices take place (Lomell, 2004). The ob-

servations published in 2004 do not only confirm the findings of Cybriwsky but they go in a step further by pointing out these effects.

The specific case with specific actors and context used in observations helps to investigate a phenomenon in a comprehensive way. Exploring relations between watchers and watched (Smith, 2007) is an example of a comprehensive research. It is also its limitation. Due to the small sample size the researcher cannot draw generalizations from such a specific case within a specific context and environment. Therefore detailed research is required, as only through such investigation will scholars be able to better discern whether the behaviours presented in this paper amount to conscious rational tactics, or subconscious survival methods (Smith, 2007).

In general observations are used to fill the gap between what people think/say they are doing or would do in a specific situation and what they actually do. In order to stay objective the observer needs to find a balance between involvement and detachment. This means involvement in the social life of the actors to be able to conduct the observation, but at the same time cognitive distance from it to stay objective and conduct scientific research.

### 3.3 Survey

A survey is a method to collect quantitative data about subjects of a population. Collecting huge amounts of data is done by using a more or less standardized questionnaire with beforehand created questions. The questionnaire could implicate actual data but also assess thoughts, opinions and feelings. The possibility to question a huge amount of subjects makes the survey a great method to get an impression of the population and therewith a popular method. Surveys which contain questionnaires for people could also be called opinion polls.

The general purpose of the surveys is to look at the individual perceptions, feelings and guesses citizens express when asked about CCTV. Therewith to get a more detailed sense of how invasive and how protective the public feels CCTV to be (Sætnam, Dahl & Lomell, 2004).

The hypothesis is often formed by different types of methods such as literature study or qualitative interviews which give a first image of the problem. Most of the times these types of research start with some international rumours which are later examined more precisely. Sometimes researchers use the survey conversely and start with getting an overall image of the population and then later using a differ-

ent method to dive deeper into some findings as is done in the study of Fischer & Helten (2004).

The general findings of these surveys show that people do feel safer and are fairly supportive of CCTV and trusting of CCTV operators. However it occurred that the difficulty of having a representative sample which also includes the targeted persons for surveillance (like; 'racial' minorities, young men, people with a scruffy appearance) plays an important role and is hard to accomplish. (Sætnam, Dahl & Lomell, 2004)

However these random samples are strongly context relevant it is hard to get a clear view of the whole population. The possible reason that this method is often used in combination with other methods is to observe how or why samples are different than the population. But also to create a first image at the population and create some first thoughts to examine later with a large questionnaire which is the survey. The research in Norway by Sætnam, Dahl & Lomell (2004) is a great example of the problem of collecting a proper sample to represent the population. Cultural minorities such as immigrants do probably have different experiences with and culturally contingent attitudes towards the police than do native-born citizens. Not every research addresses these minorities well and might have overseen some outcomes.

### 3.4 *Qualitative interview*

Qualitative interview is in the studied cases used to explore and research the relation between spatial perceptions, individual feelings of safety and surveillance. Using this method, information regarding the non-measurable perception of phenomena like public space and surveillance can be collected. Personal experiences of the interviewee are the basic data that is used, and by having an intimate dialogue those experiences are attempted to be made visible.

The hypothesis has been formulated using existing knowledge and theories. Between the articles a variation shows in the clarity and the defined formulation of this hypothesis. Qualitative interviews can also be used to form hypotheses. 'It is a search for ideas, motives and backgrounds' (Rijksoverheid, 2014). For example, the interview of Schienke(2003) is a discussion unfolding where only the theme is predefined. The discussion is unstructured and the answers given by the interviewee are not guided. Which is a totally different approach from the one that Laura Huey(2010) uses. She addresses the issue by considering predefined possibilities, and

to test those ideas, she relies on data from multiple semi-structured interviews.

The studies show that there is a great division in the actual perceived security by security cameras. In the research of Huey(2010) who explored the perception of safety by the ones that are most involved in the issue of camera surveillance in public space, the homeless, she is getting varying responses that go from feeling safer to feelings of intrusion on their lives. Of course this is an opinion of one specific group of people but when looking at the study Zurawski(2009) did on CCTV in Hamburg, using a mixed group of respondents, he finds also that the effects to enhance feelings of safety are limited. The cameras might even enhance feelings of unsafety because existing insecurities are pointing out possible dangers that passers-by might have not even noticed. Koskela(2002), who did examine this issue from the point of view of women, rejects the feelings of safety security cameras can provide completely. So for every group of people these findings might be different but there is no research that proves that security cameras enhance feelings of safety.

The interviews of Schienke(2003) and Koskela(2002) show that surveillance is perceived as an insult on privacy – Surveillance cameras do not open up public space for a wider group of people, they make public space feel more private. Koskela(2002) states that the aim of these cameras is making the public space more public by making it safer, but the threat of violence is always restricting women's use of space, so public space was probably never truly public.

Another concern is voyeurism, what happens on the other side of the camera. Both Koskela(2002) and Schienke(2003) point out the voyeurism that can occur by not having strict regulations and an agreed code of practice for surveillance. Possibilities of abuse of the system have to be eliminated for people to be able to feel safe and confident in front of those cameras.

A limitation of these results is that the panel is in most cases not a consistent one. Because of the small number of interviewees it is almost impossible to represent the overall opinion of a population.

### 3.5 *Statistical research*

Statistical research is a method that does not stand on its own. It needs sources which can be used to derive data from. Executing statistical research is a way to collect, process and operate information. It is a quantitative sort of research, which implies that the

results will be presented numerical. It could be said that execute statistical research is a more straightforward type of research than for example doing interviews or observations (rational vs. emotional). The numerical results are mostly presented in tables and graphs.

In all studied articles about surveillance in public space, based on statistical research, the researcher wants to measure a specific situation. He wants to know if a situation is improved by doing an intervention (McLean & Worden & Kim, 2013), (Armitage & Smyth & Pease, 1996), (Flight & Hulshof, 2008), articles about CCTV and (Painter, 1996) about lightning. Or they want to measure an existing situation (Kuo & Sullivan, 2001, about vegetation), in order to determine if a certain element causes less crime.

What is striking about all research descriptions is that they were set up in such a way that the result could only be presented in numbers. For example: "We assessed camera impacts by analysing monthly counts of crime and disorder..." (McLean & Worden & Kim, 2013). This is a clear property of statistical research.

The researchers used different methods to approach their case. The CCTV- researchers needed a clear basis to compare their results to. Facts about a certain location were derived from police stations. Police stations have data available which are based on official reports by residents. After the intervention on that certain location, they compared new generated figures to the old existing figures. In case of a CCTV research, the new generated figures were derived from analysing CCTV recordings. Of course there is a gap between reports and analysis via video recordings. Not every crime will always be reported at a police station by every resident. But every crime on camera will be remarked by the researchers.

Besides hard data there were articles with more emotional influence. In for example Painter (1996) people were asked if they felt safe on the streets before placing extra lightning and if they felt safer after placing extra lightning. The answers in this research were predetermined. There arises a gap between what people say and what people really feel in a certain situation (not everyone will tell a random researcher that he is scared on the streets).

In general there could be said that statistical research is the most reliable when it is based on 'hard' data. For example in Kuo & Sullivan's (2001) research about vegetation. There was set up a relation coefficient that described the amount of green in relation to crime nearby residential buildings. The amount of crimes was based on crime reports at po-

lice stations. The amount of vegetation was clearly measurable. As a result there was presented a clear conclusion.

#### 4 CONCLUSIONS

All of the methods reviewed have different approaches to investigate the topic. This leads to a variety of advantages and limitations that appear when using these different research methods. From these advantages and limitations it is possible to conclude what contribution the different methods can have in researching the topic. The findings from surveys and qualitative interviews are both based on opinions of the subjects, while the findings of observations and experiments are based on behaviour. Statistical research can be used in all kinds of methods where data is collected, in order to calculate a conclusion. When comparing surveys to interviews, both have the limitation that it is difficult to find a proper sample which can be used to represent the population. When using qualitative interviews it is a limitation that there is only a small number of interviewees and therefore it is almost impossible to represent consistent outcomes. It is difficult to make statements that go beyond such a phenomenological analysis (Zurawski, 2009), but since an interview is often used to generate ideas and views on a topic and not to collect data this is not a big limitation. Where an interview is usually semi-structured or unstructured, surveys have the form of a structured questionnaire. The validity of surveys is also dependent on the interpretation of the answers given. In general, Surveys are more suited to make a generalization of a population, while an interview offers a more in-depth research. Qualitative interviews sometimes have the option to change questions or research direction during the research whereas surveys are prepared and organized beforehand and therefore unchangeable. Where interviews and surveys base their findings on what people say they do, based on opinion, observational research focuses on what they actually do, based on behaviour. Observational as well as experimental studies are relevant to researching the topic of public space on account of the spatiality of the theme of public space. With those methods it is possible to test hypotheses in a real life situation. However, external validity can be a concern in both observational and experimental studies because some findings may prove geographically dependent. Furthermore, when researching the public space, the total exclusion of outside influence is impossible, this can pose a threat to the internal validity of the

experiment or observation, depending on the specific approach of the researcher. The findings from the experimental research reviewed are used to confirm or disclaim causalities. The hypotheses concerning these causalities are usually not formed during the research, but pre-existent from for instance conducted interviews. Experiments do not have a prescribed method of collecting data. Therefore, depending on the researched hypothesis, a choice can be made between surveys, observation or other available data. Because of the social aspect of the theme, a combination with surveys can prove helpful to collect data on personal opinions of test subjects. This way, the spatiality of the experiment can be combined with the more social aspect of surveys. However, conducting surveys or observations in a before- and after experiment can prove very much time consuming. On the other hand, when using a control group and an experimental group in order to save time and add to the internal validity, the conducting of surveys introduces other factors into the behavioural equation. And in either case, collecting data becomes in itself another gaze affecting the space and potentially adding to the panopticon factor (Lomell, Sætnan, & Wiecek, 2004).

## REFERENCES

- Armitage, R. Smyth G. Pease K. (1996). *Burnley CCTV evaluation*. Burnley, England.
- Bateson, Callow, Holmes, Roche, Nettle, (2013) Do Images of 'Watching Eyes' Induce Behaviour That Is More Pro-Social or More Normative? *A Field Experiment on Littering*. Newcastle. Funded by the School of Psychology, Newcastle University.
- Caplan, J.M. Kennedy, L.W. Petrossian, G.A. (2009). Police-monitored CCTV cameras in Newark, NJ: Placement choice and their impact on street crime incidents Science, Newark. *Centre on Public Security*.
- Christiaans, H.H.C.M. (2004). Methodologie van technisch-wetenschappelijk onderzoek. Amsterdam: Boom Uitgevers.
- Cybrwksy, R. (1999). Changing patterns of urban public space. *Observations and assessments from Tokyo and New York metropolitan areas*. *Cities Vol. 16 No. 4*: p. 223-231.
- Flight S. Hulshof P. (2010). *Cameratoezicht bekeken: evaluatie cameratoezicht Amsterdamse Wallen en Nieuwendijk*. Amsterdam, The Netherlands.
- Fischer, B. & Helten, F. (2004). What do people think about CCTV. Findings from a Berlin survey. *Zentrum Technik und Gesellschaft. Berlin. Working Paper No. 13*.
- Gerring, J. (2011). *Social science methodology*. New York: Cambridge University Press.
- Huey, L. (2010). False security or greater social inclusion? Exploring perceptions of CCTV use in public and private spaces accessed by the homeless. *London School of Economics and Political Science 2010 ISSN 0007-1315 print/1468-4446 online. The British Journal of Sociology 2010 Volume 61 Issue 1*. Published by Blackwell Publishing.
- Jorgensen, A. Hitchmough, J. Calvert, T. (2002). Woodland spaces and edges: their impact on perception of safety and preference. *Landscape and Urban Planning 60 (2002) 135-150*. Department of Landscape, University of Sheffield.
- Klauser, F. (2004). A Comparison of the Impact of Protective and Preservative Video Surveillance on Urban Territoriality: the Case of Switzerland. *Surveillance & Society. CCTV Special (eds. Norris, McCahill and Wood) 2(2/3): p. 145-160*.
- Koskela, H. (2002). Video Surveillance, Gender, and the Safety of Public Urban Space: "Peeping Tom" Goes High Tech?. *Urban Geography, 23:3, 257-278, DOI: 10.2747/0272-3638.23.3.257*.
- Kuo, F.E. Sullivan, W.C. (2001). Environment and crime in the inner city: does vegetation reduce crime? *Environment and behavior, Vol. 33 No. 3*.
- Lomell, H.M. (2004). Targeting the unwanted: Video surveillance and categorical exclusion in Oslo, Norway. *Surveillance & Society. CCTV Special (eds. Norris, McCahill and Wood) 2(2/3): p. 346-360*.
- McLean, S.J. Worden R.E. Kim M.S. (2013). Here's looking at you: an evaluation of public CCTV cameras and their effects on crime and disorder. *Criminal Justice Review 2013*. Georgia State University, United States.
- Newman, O. (1996). The Clason experiment. In *Creating defensible space*. (pp 65-79). New York. Diane Pub Co.
- Painter, K. (1996). *The influence of street lighting improvements on crime, fear and pedestrian street use, after dark*. Institute of criminology, Cambridge University, Cambridge. England.
- Painter, K, Farrington D.P. (1997). The Crime Reducing Effect of Improved Street Lighting: The Dudley Project. *Funded by Patrick Baldry, Managing Director of Urbis Lighting*.
- Rasouli, M. (2013). Analysis of activity patterns and design features relationships in urban public spaces using direct field observations, activity maps and GIS analysis. Master thesis University of Waterloo.
- Rijksoverheid. (2014). *Kwalitatief onderzoek*. Retrieved from <http://www.rijksoverheid.nl/onderwerpen/overheidscommunicatie/informatie-voor-professionals/communicatieonderzoek/kwalitatief-onderzoek>.
- Sætnan, A.R., Lomell, H.M., Wiecek, C. (2004). Controlling CCTV in public spaces: Is privacy the (only) issue? *Reflections on Norwegian and Danish observations. Surveillance & Society. CCTV special (eds. Norris, McCahill and Wood) 2(2/3): p. 396-414*.
- Sætnan, A.R., Dahl, J.Y. & Lomell, H.M. (2004). Views from under surveillance. Public opinion in a closely watched area in Oslo. *Zentrum Technik und Gesellschaft. Berlin. Working Paper No. 12*.
- Schienze, E.W. and Brown, B. (2003). Streets into Stages: an interview with Surveillance Camera Players' Bill Brown. *Surveillance & Society 1(3): 356-374*. <http://www.surveillance-and-society.org>.
- Smith, J.D. (2007). Exploring relations between watchers and watched in control(led) systems: Strategies and tactics.

Surveillance & Society. *Special issue on 'Surveillance and Criminal Justice' Part 2 4(4)*. p. 280-313.

Dr. Williams D, Ahmed J, (2009). The Relationship Between Antisocial Stereotypes and Public CCTV Systems: Exploring Fear of Crime in the Modern Surveillance Society. *Hertfordshire*. School of Psychology, University of Hertfordshire.

Zurawski, N. (2006). Study: CCTV in Hamburg - spatial perception and attitudes towards camera surveillance. *Part A. Institute for Criminological Social Research, University of Hamburg funded by the German Research Council (DFG Zu 124 / 2-1, 2-2)*.

Zurawski, N. (2006). Study: CCTV in Hamburg - spatial perception and attitudes towards camera surveillance. *Part B. Institute for Criminological Social Research, University of Hamburg funded by the German Research Council (DFG Zu 124 / 2-1, 2-2)*.

Zurawski, N. (2008). Video surveillance and everyday life: Assessments of closed-circuit television and the cartography of socio-spatial imaginations. *International Criminal Justice Review*. Volume 17 Number 4 December 2007 p. 269-288.

# Demonstrations in Public Space.

Z. Akyol, Y. Dong, M.A. El-Kebir, W. Guo & S. Sadek

*Urban Design and Planning, Eindhoven University of Technology, The Netherlands*

**ABSTRACT:** Urban space is a component of the city that changes over several periods during the history of a nation. While public spaces usually provide users with a sense of attachment and identity, both emotionally and visually, certain urban public spaces seem to embody the cities in which they are found. We are at a stage in history where modern revolution has resurfaced in an outbreak at a scale that was hard to predict. The effect of such events has yet to be digested let alone understood. Some researchers have already researched this subject using different research methods. The aim of this paper is not only to examine the dramatic changes in public spaces in different part of the world and to compare the results. This paper also aims to compare the different research methods used in the analyzed research papers. This is done by following the changes in the political landscape of the places where these squares are situated. In this paper different research methods and aspects of the broad subject “demonstrations in public space” will be addressed. The research methods analyzed, by analyzing five different research papers on the topic “demonstrations in public space” per research method, are quantitative interviews, historical analysis, data analysis, case study and qualitative observation. The overall research method used in this paper is the literature grid; at the end of the paper all results will be compared to one another to come to a final conclusion. The authors of the different chapters will describe the research method analyzed and explain the reason of choosing that specific research method. In the literature grid the sources and an overview of the information gathered from these sources can be found. This literature grid is used as a guideline through the paper.

**KEYWORDS:** *Demonstrations, Public space, Political landscape, Literature grid*

## 1 INTRODUCTION

‘A public meeting or march protesting against something or expressing views on a political issue: ‘a pro-democracy demonstration’, ‘demonstrations against the poll tax’ is the definition of the word demonstration in the Oxford Dictionary. Throughout history a lot of demonstrations have taken place all over the world. While some of these demonstrations may have led to changes the demonstrators envisioned, some passed by as if they never happened. The last few years demonstrations are once again a much discussed subject both in the news as on the streets. A recent example of such demonstrations is the demonstration that took place January 11th, 2015. This demonstration against terror in Paris is already

described as the largest demonstration in French history. However one could argue about the importance of the cause people are demonstrating for – for example the so called ‘Zwarte Pieten Discussie’ – one cannot deny the impact some demonstrations have on the political landscape and society.

A lot of research has already been done on all kinds of demonstrations all over the world. One could wonder if we cannot learn from these previous demonstrations and the results that followed from the research done on these demonstrations. The research question of this paper is: ‘Which research methods are the most effective to analyze and learn from demonstrations in public space?’

Five different research methods used in research on demonstrations in public space are described, analyzed and compared in this paper. The aim of the paper is not simply summing up the results of the re-

search papers, but rather comparing the different research methods and giving conclusions based on the results in the used research papers and articles. In the second chapter the used methodology to do this will be discussed. The five research methods discussed in this paper are: quantitative interviews, historical analysis, data analysis, case study and qualitative observation.

Interviews can be done with a survey or in-depth interviews. The type of interview this paper focuses on is the one done with survey. In the interview, the survey is conducted by a researcher who records the answers of the respondents. The survey can be both fully structured and semi-structured. In a semi-structured survey, the interviewer has more space to respond to the answers of the respondent and the conversation also has a more open character. In the article by James (2013) they researchers interviewed people from house to house using fully structured survey. Hatem and Coskun (2014) on the other hand used an in-depth survey on the place of demonstration.

Historical analysis is a research method where a lot of historical sources and data are used to study an event in chronological order. This method is also called longitudinal study, which is a form of comparative study. By using historical analysis it is easy to explain the changes during an event and the influences on an event. Why an event took place can be figured out easily by dating back in history. To some extent history is also a guide for the present. We cannot understand our present without understanding history.

Data analysis is a process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making. Data analysis has multiple faces and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains. The type of data analysis this paper focuses on is mainly quantitative data analysis based on data from social media. The last few years social media has been playing a big role in demonstrations (Gerbaudo, 2012). Graphs and other visualizations are used to illustrate the relationship between social media and recent big demonstrations and the effect of social media on demonstrations in public space.

Case study, particularly multiple case study, is one of the many methods used in research on demonstrations in public space. Case study does not focus on the specific case or its cause-effect relationship. Instead, it focuses on the relationship of cases and emphasizes the exploration among them. To analyze

demonstrations in public space, researchers describe demonstrations in detail. They analyze demonstrations take place and then compared them to make an inspiring summary.

The observation method is yet another well-known research method to analyze demonstrations in public space. To understand the behavior of people researchers make use of the observation method. First the researcher determines what he wants to research, how he wants to observe and with what frequency the observation has to take place. It is a method to collect information. The human senses are the most important tool for a good observation. Many researchers have used this method to analyze demonstrations all over the world.

In the third chapter five articles on each research method are summarized and cross-related, while detailing strengths, weaknesses, opportunities and threats per research method. The conclusion draws together the findings emerging from the previous chapters and discusses their implications. By doing this the answer to the research question: ‘Which research methods are the most effective to analyze and learn from demonstrations in public space?’ will be known.

## 2 METHODOLOGY

In this research paper five research methods on the subject ‘demonstrations in public space’ are analysed and compared to get to the conclusions. The methodology used to do this is the literature grid. Using a literature grid as methodology deepens the understanding of sources and research methods and shows the relation and contrast between them. The five research methods are compared by using the literature grid. For each of the five research methods, five sources are reviewed and added to the literature grid.

The literature grid includes the source’s title, key words, main findings, evidence used, and gaps per source per research method. The source part shows the basic information of the article (e.g. title and author). The keywords give an idea of what the article is about in a few words. The main findings summarize the results. How the method is used can be found in the evidence used part. In the column ‘gaps’ the limitation of the paper and/or the limitation of the method used in the paper are noted.

### 3 RESULTS

#### 3.1 Interview

Hatem and Coskun (2014) used general questions for face to face in-depth interviewing. They have chosen to interview people in four different cities (Istanbul, Ankara, Izmir and Eskisehir). The interviews were recorded with voice recorders. To create the sample of the research they made a choice among persons 15-30 years of age who were present on the place of demonstration. The researchers have taken the number of males and females they interviewed into account. By doing so they tried to reach as much as possible people with different ideologies.

In the article by Konda arastirma ve danismanlik sirketi (2014) only the demonstrators in Gezi Park have been interviewed. The researchers have chosen to interview only the demonstrators in Gezi Park because this was the start and the central point of all the events. The researchers have also concluded that the demonstrators in Gezi Park can represent all demonstrators. Main questions were prepared for the interviews and the researchers divided Gezi Park into ten different regions in which they interviewed the demonstrators (figure 1). In total 4411 demonstrators have been interviewed.



Figure 1: Gezi Park divided into different regions

For the research by James (2013), the researchers used a structured survey to interview. They interviewed citizens in every area of the country from its southern-most part up to the Sinai. The people were interviewed at home in a face to face, personal interviews at home. This was done because the researchers wanted to know how the demonstrations on Tahrir Square had begun, when the demonstrations had stopped. The researcher included adult men and women from both urban as rural areas for his research.

Some of the advantages of using interviewing as research method are that in some cases the interviewer can help when the respondent does not understand the question, the interviewer can keep ask-

ing questions when the answers are not satisfying – however this could also be seen as an disadvantage, since this could make the research less reliable – and last the interview gives an objective perspective about the situation.

Some of the disadvantages of this research method are that the research method is relatively expensive compared to other methods, the interviewer can influence the respondent and the long time it takes to finish an interview can influence the answers in a bad way.

#### 3.2 Historical analysis

In the five papers discussed in this paragraph the authors showed the history of demonstrations, demonstrated the relationship between the events and public space and explained why these demonstrations took place in such places. For example, Wu (1991) told a long story about the formation of the square to explain the meaning and function of this square in ancient China. In traditional China the Ground before Tiananmen was also a place of death.' Wu stated in the article. It means that the square is a symbol of imperial power in the past. While times changed, people still considered this square as a symbol of the dominance of the government.

When the author described the demonstration in 1976 in these words: 'From all directions people came to the square, of their own will and to express their own will. When they try to speak out and prove they were the 'people', they were arrested and beaten.' What happened on the square in 1976 showed association with past-outlaws and death. When we compare it with history, the symbol of the square becomes clearer. People want to choose this square as a place to demonstrate because, in contrast to the symbol of government, demonstration underlines freedom and democracy.

Another example are the demonstrations in Gezi Park and Taksim Square in Istanbul. Murat et al. (2014) introduced the history of Gezi Park and Taksim Square. They used many historical photos and historical sources to illustrate the formation and transformation of the area. The whole process clearly explained why the government wanted to reconstruct the Ottoman Artillery Barracks, and why the demonstrations took place in these places. The green space in Gezi Park was so important for the citizens that they also demonstrated in the park for the park also. This is another way to underline the ideology of democracy. In the other three articles, authors also used historical photos and historical sources to illustrate the reason and describe the process of

demonstrations. By using historical analysis as research method, the whole incident is easy to follow, the background, reasons and even the results are easy to understand.

To sum up, by dating back to the history, using historical analysis the best approach to explain deeply how an event began because the background of the event is clearer. The reason why people choose these kinds of spaces to demonstrate and the reason why using these kinds of spaces to demonstrate can underline the ideology of democracy, are easy to understand. The meaning of demonstrations and how occupy movements influence politics is also comprehended. Furthermore, another strength of historical analysis is to provoke the reader's interest. Study or research can be very tedious, while historical analysis is like telling stories, which helps the readers to keep going. However, historical sources are not easy to collect, and the accuracy of some sources are even difficult to judge. Therefore, historical analysis also has its own limitation.

### 3.3 Data analysis

Together with the stress on the imbrication between media and locality Gerbaudo's (2012) key contention is that the introduction of social media in social movements does not simply result in a situation of absolute spontaneity and unrestrained participation. On the contrary, influential Facebook admins and activist tweeps become 'soft leaders' or choreographers involved in setting the scene, and constructing an emotional space within which collective action can unfold.

For the research done by Choudhary et al. (2012) more than 800,000 tweets on topics related to the revolution were set out so an analysis could be presented from three different perspectives. First, how sentiment evolved in response to unfolding events; how the most influential tweeters and popular tweets shed light on the most influential Twitter users and what types of tweets reverberated most strongly; and how user sentiment and follower relationships relate in terms of dynamic social network characteristics and sentiment. Using these metrics, Egypt-related topics during the revolution are compared to other popular early-2011 trending topics (such as politics, sports, and entertainment) (Choudhary et al., 2012).

To get a sense of how Twitter activity reflected the events of the revolution, the authors of the article selected six Egypt-related topics that trended at least three days during the period January 25–February 11, 2011, where a trending topic was a subject iden-

tified by Twitter that notably increased how much it was discussed.

They also selected topics that trended several times to see how conversations developed in response to the events of the revolution. We collected thousands to hundreds of thousands of tweets for each day Egypt-related topics were trending and assessed the sentiment of daily tweets. The sentiment for each tweet was classified as positive, negative, or neutral based on a sentiment-analysis technique described by Zhang et al. As Twitter does not require users provide their geographical location, they were unable to isolate the tweets coming from within Egypt itself (Choudhary et al, 2012).

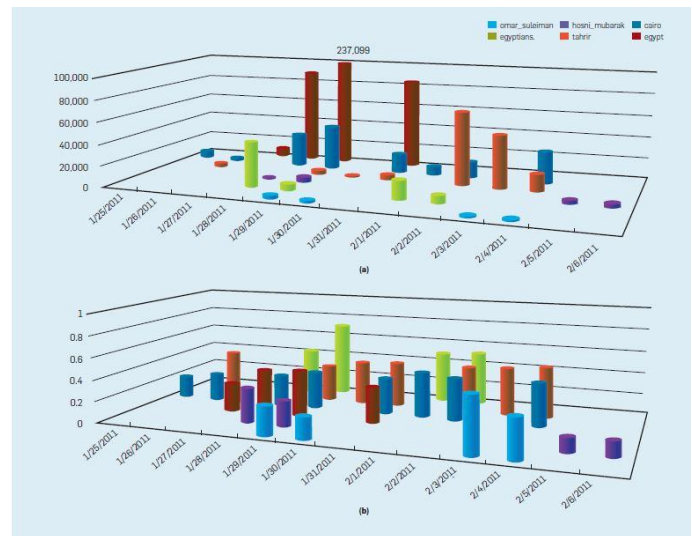


Figure 2a: Volume of tweets per day

Figure 2b: Cumulative tweets

Some of the results can be seen in the figures 2a and 2b and in table 1. Figure 2a lists the volume of tweets per day, Figure 2b lists cumulative tweets, and Table 1 outlines some of the revolution's major events, along with the number of tweets and the average sentiment for four Egypt-related Twitter topics.

Table 1. Major events revolution Egypt

Date	Major Events	Number of tweets			Positive tweet fraction	
		Topic	Daily	Cum.	Daily	Cum.
Jan. 25	"Day of Rage" protests in Cairo signal start of major changes in Egypt	cairo	6,892	6,892	0.207	0.207
		egypt	N/T	N/T	N/T	N/T
		hosni_mubarak	N/T	N/T	N/T	N/T
		tahrir	N/T	N/T	N/T	N/T
Jan. 27	Egyptian government begins limiting Internet access in Egypt	cairo	N/T	39,752	N/T	0.219
		egypt	8,395	8,395	0.267	0.267
		hosni_mubarak	N/T	N/T	N/T	N/T
		tahrir	N/T	3,053	N/T	0.413
Jan. 29	Mubarak dismisses his cabinet and appoints Omar Suleiman as Vice President of Egypt	cairo	41,049	80,801	0.354	0.315
		egypt	237,099	334,612	0.448	0.435
		hosni_mubarak	4,670	5,759	0.236	0.251
		tahrir	3,776	6,829	0.209	0.376
Feb. 2	Egyptian government ends blocking of Internet access	cairo	15,341	122,575	0.406	0.338
		egypt	N/T	418,855	N/T	0.418
		hosni_mubarak	N/T	5,759	N/T	0.251
		tahrir	68,389	80,616	0.428	0.424
Feb. 6	Egypt-related topics stop trending on Twitter; Mubarak resigns Feb. 11	cairo	N/T	152,463	N/T	0.355
		egypt	N/T	418,855	N/T	0.418
		hosni_mubarak	3,656	12,719	0.145	0.191
		tahrir	N/T	146,439	N/T	0.44

What can be concluded about data analysis from the research done by Choudhary et al. (2012) is that scalable analytics help make sense of the influence on and outcome of large-scale social and political events, as they unfold. Also advanced algorithms for sentiment and response analysis help differentiate behavior patterns of groups within different communities.

Something else than can be said about data analysis based on quantitative data from social media is that this research method can be considered more reliable than other research methods because it is objective. The numbers are there and can be checked by anyone who has access to the internet. However one can doubt whether the right conclusions are given, because it is always possible that other factors (e.g. the weather) that play a role have been overlooked.

### 3.4 Case study

Case study was used in the following five sources to explain the relationship between demonstrations and public space from different aspects, while giving examples of events that have taken place in different spaces. By using case study, theories and opinions can be understood intuitively.

These cases focus on the interaction of political events and the use of public space, its political meaning and its social meaning. The cases are about extraordinary events that have taken place in ordinary places, which showed different aspects of this interaction. Sergio and Xóchitl (2008) for example stated that 'Our intent in this chapter has been to link physical, social, and symbolic space with a notion of political space through the cases of the 2000 electoral campaign and the Zapatista March. We described two extraordinary situations in the same place and attempted to understand how such events reinforced the conditions of the public sphere in Mexico.' This shows that the author tried to emphasize how the extraordinary events deepened the symbolic and political character of the urban space by comparing two cases.

Another example shows the events that took place accompanying the revolutions in Venezuela, which used as cases explain a transition in the relation of democracy and public space. Clara and John (2008) stated that 'Just as extraordinary events in Caracas's recent past have marked the current state of Venezuela, ordinary places can be catalysts for citizen awareness to maneuver from undemocratic existential struggles to a democratic and participatory political culture.' It shows that public space endows

those events with democratic meaning as people tried to change their life.

Some cases have a direct relation with the research, but some have potential ones. Through such cases, answers are not given directly, but more thinking is stimulated. So, theories can be proved, and new opinions also can be suggested.

By using case study as a method, the research is narrowed down into several different specific research topics. So, it is easy to explain the theory and make people understand the abstract relation between cases and research. Conclusion can also be clearer and more convincing by using case studies. However, case studies might be too specifically focused in several cases, and conclusions from these studies might be limited.

### 3.5 Qualitative observation

To understand the behaviour of the people researchers make use of the observation method. First the researcher determines what he wants to research, how he wants to observe and with what frequency the observation has to take place. It is a method to collect information. The human senses are the most important tool for a good observation. When using this research method the researchers also participate in activities to study the behaviour of people in different situations. By doing so they meet different types of demonstrators. In participant observations, the researcher is physically present in the field and collects data by participating in the activities. The situation and the behaviour of the people can be collected by filming and taking pictures of the event, these tools can be used to do indirect observations. The advantage of indirect observation is that the process is not disturbed by the presence of the observer.

Tufekci (2013) has spent a few days to observe the people in Istanbul's Gezi Park demonstrations by hanging out in the park. She has also been talking with different people from journalists to visitors, to find out what has happened in the past and what it looks like nowadays by analysing before and after photos of the location. Tufekci (2013) says that 'CNN Turkey was showing penguin documentaries while the initial major clashes were ongoing'. The media is showing other things than the reality, by observing situations researchers see the truth.

The goals of the observation by Johnston and Toulon (2011) are to find out how many people occupied the site or are involved and their behaviour, the spatial design of the Alpha and Beta camps at the occupy Portland and the interaction between the occupiers and the space. The results of these goals are

obtained with direct observation at the camps including participant observation during a period of three weeks and different time periods.

The studies discussed made use of participatory research. The researcher is trying to get better or more valid information. General advantages of the observation method are: those who are observed do not realize that they are taking part in a research, the researcher will have the chance to collect original data; in participant observation research, the researcher experiences what it is like to participate in the activity by his/her own experiences; the researcher obtains a lot of information as he/she can write down everything that happens. Some disadvantages of this research method are that it is difficult to understand the underlying motivations, thoughts and ideas of the person/situation that is being observed, because there is no direct contact in all cases and it takes a lot of time because of the amount of the constant wave information.

#### 4 CONCLUSIONS

Five different research methods with regard to demonstrations in public space have been described, cross-related and analyzed. Within five sources in which research has been done using the same research method it is already clear that there is a wide variety of data, results and topics connected to 'demonstrations in public space'. This can make one get lost in the answer to the research question: 'Which research methods are the most effective to analyze and learn from demonstrations in public space?'. Luckily the literature grids maintains order in the results of the different researches and research methods discussed.

In the previous chapter some answers have already been given while detailing the strengths, weaknesses, opportunities and threats of each research method. For example an advantage of using interviewing as research method is that in some cases the interviewer can help when the respondent does not understand the question. A disadvantages of the same research method is however that the interviewer can influence the kind of answer the respondent will give.

A strength of historical analysis is that by using this method it is easy to explain into detail how an event began because the background of the event is clearer. A weakness however is that some historical sources are not easy to collect, and the accuracy of some sources are even difficult to judge.

Data analysis based on quantitative data from social media can be considered more reliable than other research methods because it is objective and the numbers are easy to find and can be checked by anyone who has access to the internet. However one can doubt whether the right conclusions are given, because it is always possible that other factors (e.g. the weather) that play a role have been overlooked.

By using case study as a method, the research is narrowed down into several different specific research topics. So, it is easy to explain the theory and make people understand the abstract relation between cases and research. However, case studies might be too specifically focused in several cases, and conclusions from these studies might be limited.

A general advantage of the observation method is that the researcher obtains a lot of information as he/she can write down everything that happens. A disadvantage is that it is difficult to understand the underlying motivations, thoughts and ideas of the person/situation that is being observed, because there is no direct contact in all cases.

Without a doubt it can be said that all five research methods have their own pros and cons. The most effective research method to analyze and learn from demonstrations in public space might be the mixed methods approach in this case. We live in times where we have to deal with new technologies such as social media and can take advantage of it. On the other hand we still learn from the past, because without it we would not have gotten these new technologies. But it is also known that not everything shown and said on social media is true, we still have to see things with our own eyes to believe it and observe things to learn from them. Also when asking people what they think of something and by comparing similar situations we get a better understanding of the world. So something could be said for every method and it would be a good idea to combine the best of all.

#### REFERENCES

- Adam, T.S. 2003. *The Political Landscape. California: University of California Press.*
- Alberto, S. 2008. *The Plaza de Bolívar of Bogotá: Uniqueness of Place, Multiplicity of Events.* In Clara Irazábal(ed), *Ordinary Places, Extraordinary Events: Citizenship, Democracy and Public Space in Latin America.* New York: Routledge, p 126-143
- Cheng, L. (2008). *China's Changing Political Landscape: Prospects for Democracy.* Washington D.C. : Bookings Institution Press.

- Choudhary, A., Hendrix, W., Lee, K., Palsetia, D. & Liao, W. 2012. Social Media Evolution of the Egyptian Revolution. *Communications of the ACM*, Vol. 55, No. 5
- Clara, I. & John, F. 2008. Space, Revolution and Resistance: Ordinary Places and Extraordinary Events in Caracas. In Clara Irazábal(ed), *Ordinary Places, Extraordinary Events: Citizenship, Democracy and Public Space in Latin America*: 144-169. New York: Routledge.
- Dekker, M.J.T. & Duyvendak, W.G.J., 2013. Reclaiming urban public spaces. Protest form as means and end in occupy. *International RC21 Conference*. Session: 11, Contentious Cities.
- DSG's Governance and Innovation Program, Mourta, R. & Salem, F. 2011. *Civil Movements: The Impact of Facebook and Twitter*. Arab Social Media Report, Vol. 1, No. 2
- Eaton, T. 2012. *Online activism and revolution in Egypt: Lessons from Tahrir*. New Diplomacy Platform, Progressive Solutions for a Globalised World
- Gerbaudo, P. 2012. Tweets and the Streets: Social Media and Contemporary Activism. London: Pluto Press.
- Global Faultlines*, 2-6. England: Keele European Research Centre.
- Gökay, B. & Xypolia, I. (eds). 2013. Reflections on Taksim – Gezi Park Protests in Turkey.
- HH. & CT. 2014. The Gezi Park protests a political, sociological and discursive analysis. Istanbul: SETA.
- Jeff, H. 2010. The Tiananmen Square Protests of 1989 - Perspectives on Modern World History. USA: Greenhaven Press.
- Johnston, K. & Toulon, N.A. 2011. Public space and protest: An ethnographic analysis of Alpha and Beta camps at Occupy Portland. Project Report, Portland State University, Portland.
- JZ. 2013. After Tahrir: Egyptians assess their Government, their institutions, and their future. Washington: Zogby Research Services.
- Konda araştırma ve danışmanlık şirketi 2014. Konda Gezi Report, Public perception of the Gezi protests, Who were the people at Gezi Park? Turkey: Konda.
- Leonardo, A. 2002. Democracy and the Public Space in Latin America. New Jersey: Princeton University Press.
- Murat, G., John, D., Cahide, N. C. 2014. Istanbul's Taksim Square and Gezi Park: the place of protest and the ideology of place. *Journal of Architecture and Urbanism* 38: 63-72
- Nilufer, G. 2013. Gezi – Anatomy of a Public Square Movement. *Insight Turkey* 15(3):7-14
- ÖÇ. 2013. Gezi Park demos: Democratic protests or revol? Turkishreview: page 1.
- Palestina Summer Encounter Group. 2012. Observing a protest in Al-Ma'sara. Consulted on 30 november 2014  
<http://palestinesummerencounter.tumblr.com/post/55680269038/observing-a-protest-in-al-masara>
- Roberto, S. 2008. Iconic Voids and Social Identity in a Polycentric City: Havana from the Nineteenth to the Twentieth Century. In Clara Irazábal(ed), *Ordinary Places, Extraordinary Events: Citizenship, Democracy and Public Space in Latin America*: 198-220. New York: Routledge.
- Storck, M. 2011. *The Role of Social Media in Political Mobilisation: a Case Study of the January 2011 Egyptian Uprising*
- Sergio, T. & Xóchitl, C. 2008. Political Appropriation of Public Space: Extraordinary Events in the Zócalo of Mexico City. In Clara Irazábal(ed), *Ordinary Places, Extraordinary Events: Citizenship, Democracy and Public Space in Latin America*: 35-58. New York: Routledge.
- Taptuk, E. 2013. Taksim Gezi Park Protests: Birth and Backlash of a Political Sphere. In B. Gökay & I. Xypolia. (eds), *Reflections on Taksim – Gezi Park Protests in Turkey*: 43-46
- Tufekci, Z. 2013. What do occupygezi protesters want? My observations from Gezi Park.  
Consulted on 30 november 2014  
<http://technosociology.org/?p=1349>
- Tufekci, Z. 2013. Pepper-spray and penguins. *Juncture* [Volume 20, Issue 2](#), 130–132.
- Vice President 2014. Turkey, Free expression under a shadow. Norway: PEN International Oslo.
- Zeuler, R. L. & Vera, M. P. 2008. Reinventing the Void: São Paulo's Museum of Art and Public Life along Avenida Paulista. In Clara Irazábal(ed), *Ordinary Places, Extraordinary Events: Citizenship, Democracy and Public Space in Latin America*: 59-83. New York: Routledge.

# Is this my city? Researching the methods that investigate how branding influences place identity.

J.P.M. van den Boer, J.L.M. van der Doelen, I.A.J. Heesterbeek, J.M.E. Pelzer & C. Steenhuis  
*Urban Design and Planning, Eindhoven University of Technology, The Netherlands*

**ABSTRACT:** In order to be distinctive in the competitive world of globalization, cities, provinces and states are constructing and conveying a favored image of themselves, to provide a framework through which a place can be perceived (Johansson, 2012). This practice, place branding, creates narratives which nurture the development of the identity of a place (Julier, 2005). The aim of this paper is to investigate which method is most suited to determine the effect of place branding on the identity of a place. This has been done by examining five different research methods on the basis of 25 articles covering the subject, then classifying the methods. A literature grid was used as a means of analysis, which gave an overview of purposes, uses, aims, findings, and limitational gaps of the reviewed articles. Because the different research methods lend themselves for different approaches to the subject, they will each highlight other aspects of place branding and place identity. Thus, the subject can be examined from different frames of reference, both by examining the formal, political, social and economic frameworks that are decisive factors for the boundaries of a place brand, as well as examining the more informal, social, cultural and economic frameworks.

The study showed that methods case study, interviews and participant observation are strong in explanation building. These studies are strong in answering questions that start with how and why. In contrast survey and content analysis are suitable for quantifying relationships in samples and questions that start with why. Results show that using one method only may not encompass the multi-faceted places and therefore often a combination of methods is necessary. Triangulation is key and yields the most valuable results.

**KEYWORDS:** *Place branding, Place identity, Research methods*

## 1 INTRODUCTION

More and more cities all around the world are trying to make a name for themselves. The conscious attempt of governments to shape a specifically-designed place identity and promote it to identified markets, whether external or internal it is almost as old as civic government itself (Kavaratzis & Ashworth, 2005). Cities become more aware of the role that branding can fulfill as a political instrument in creating a strong image in the minds of inhabitants, possible tourists, investors, etc.

The simple definition of place branding is that it is “merely the application of product branding to places (Kavaratzis & Ashworth, 2005: p.508)”. A more thorough definition is provided by Zenker and Braun

(2010) who define place branding as “a network of associations in the consumers’ mind based on the visual, verbal, and behavioral expression of a place, which is embodied through the aims, communication, values, and the general culture of the place’s stakeholders and the overall place design” (p. 4). This definition implies that the range of the branding topics is broad and varies for example from cultural and tourism to sustainability and therefore more suitable for this research. For both cities that start branding and cities which already brand themselves, it is important to keep in mind how the branding can affect the identity of the place. Since strong elements of a place are emphasized and weaker points are left out. This could result in a loss of various local identities.

The word “identity” means two things (Jacobson-Widding, 1983): sameness (continuity) and distinctiveness (uniqueness), and therefore the term

“place identity” should incorporate both aspects. Place identity is also part of a multidimensional construct (place attachment), including, place dependence and social bonding (Haans, 2014). In addition, place identity forms the base for creating a city brand, which is becoming more and more internationally recognized as a research domain.

This paper will focus on examining, analyzing and comparing various methods, used to research the effect of place branding on place identity. Main points of interest are the purpose, method and the imitational gap of each method. To answer these questions we formed a central question, which is as follows: *What is the most suited method to study the influence of place branding on place identity?*

For this research question the most suited method is regarded as the one with the least weaknesses and the most strength.

Although the topic has been often researched and has a very broad range, the research questions are narrowed down by focusing on the topics mentioned in the keywords. The chosen sources identify the various aspects that influence the research topic and highlight its potential importance in research. Furthermore, with this paper the foundation is laid for a conceptual framework to guide future research.

The epistemological position for this research paper is mainly interpretative. This implies that the research will try to grasp the subjective meaning of social action. This will be done by reviewing five different research methods and comparing those to each other. The five proposed methods for the research are: Qualitative interviews, case studies, content analysis, participant observation and survey. To gain more insight in how each method works and what kind of information it produces, five different articles are studied in which the specific method is used. Afterwards, similarities and differences are examined.

## 2 METHODOLOGY

For this research 25 articles related to place branding and identity were reviewed. The iterative search for articles started with defining a set of search concepts related to place branding. These terms were used in major academic search engines such as Scopus, Web of Science and Google Scholar. In the first phase, the goal was to gain a wide range of articles, not method related. Afterwards, the found articles were each linked to one or multiple categories. The five categories that contained the most sufficient articles

were selected as the research methods, which are explained shortly in the following subchapters.

The second phase contains the use of the literature grid method. Yacobucci (2012) argues that this tool grants multiple advantages. Firstly, it is a great way to organize and structure the information and articles. Secondly, the most important elements of each article can be written down and afterwards easily compared. Within this paper the literature grid is used to identify the keywords, the purpose of each article, the methods used, and what the findings of the articles are. In addition, the limitational gap is examined; what is missing in the article? Did they miss or over think a specific thing? By summarizing and linking (differences and similarities) the above-named elements, the step towards comparing the selected research methods can be made.

### 2.1 Interview

In qualitative research, an interview is characterized by a small sample size and open-ended questions. The rich and holistic nature of qualitative interviews provide a deeper understanding of the subject (Bryman, 2008). In 3 out of 5 articles reviewed concerning this method, interviewing is used to explore certain relationships, after that survey is used to quantify that relationship. The other 2 use the interview to gain more insight into their respective topics.

### 2.2 Survey and data analysis

Survey is a quantity-based research method used to retrieve data from a large target group. For this paper, the choice was made to focus more on articles containing online and mail survey. The main reason for this is that these surveys are simpler, cheaper (Bethlehem, 2012) and aimed at a large target group. Data analysis can be seen as second phase of survey; the result of the survey (usually a data set) can be further studied to reveal more specific data which has a closer relationship with the research question.

### 2.3 Case study

Case study research is the study that entails a detailed and extensive examination of a certain setting (Bryman, 2008). Within the method, five different designs are distinguished to theoretically embed the choice for the five articles. Yin (2009) defines the critical case, extreme case, typical case, revelatory case and longitudinal case. For every design an arti-

cle is matched to give a representative view of the method as a whole.

#### 2.4 Content analysis

Content analysis is any technique for making inferences by objectively and systematically identifying specified characteristics of messages (Holsti, 1969). Five different kinds of views on the topic are researched and include the analysis of the content of websites and promotional material, but also branding by a building, analyzing in a longitudinal approach and a terminology content analysis of literature.

#### 2.5 Participant observation

Participant observation is a qualitative research method, rooted in ethnographic research. By both observing and participating, daily activities of communities are being studied in the environment of the participant, which makes this method distinctive from other methods (Mack, et al., 2005). Also informal conversations and interactions with representatives of the studied population are enclosed in this method. The five articles use participant observation in combination with interviews. Three out of five articles also used ethnographic research.

### 3 RESULTS

#### 3.1 Interview

In qualitative research, interview can be used to obtain a better understanding of the topic. Open-ended questions and a small sample characterize this method. Different techniques can be used, such as structured, semi-structured, unstructured, and individual in-depth interviews. In qualitative research data collection and data analysis happen simultaneously, which will often result in altering questions as the researchers learn more about their topic (DiCocco-Bloom, 2006).

Qualitative interviews use questions without pre-determined answers, which allows the participant to give a nuanced answer, allowing a better understanding of the topic in its context. Also, it makes it possible to validate or refute quantitative research on the same topic. In an approach which uses quantitative and qualitative methods, interviews may help triangulating, giving meaning to data, explaining, or giving a more comprehensive account of the field of research (Bryman, 2006).

In the articles used to compare the different methods, qualitative interviews are used either to gain a better overview of the topic, or to explore relationships between factors. Silvia Tobias uses interview as an explorative method, in order to develop the written survey (Tobias & Müller Wahl, 2013). Kavaratzis (2007) uses a similar approach in the case of Amsterdam, where different dimensions are identified through qualitative interviews, subsequently questionnaires are used to quantify these dimensions, using a larger sample size. Zenker (2010) also uses this approach in the case of Hamburg. Whereas, Lynne (2005) explores the nature of peoples relationship to space and the processes by which they are developed. Unlike Curtis (2001) who seeks to gain insight to the opinions of a specific target group on the effectiveness of the Oregon branding campaign. This illustrates the rich and holistic character of qualitative research. The interviews help to give an overview and deeper understanding of the topic, allowing development of further research.

The nature of qualitative interviews, talking face-to-face with participants, creates certain difficulties. A potential weakness of the methods is the scale of the sample. If the samples are too large, the research will be too costly and time consuming. Hence, the selection of a suitable sample is important (Bryman, 2006). In the researched articles the interviewed target groups were limited and/or vague, so it is questionable if the data is valid. Also, the attitude and skill of the interviewer is important, as this can affect the interview greatly. Another disadvantage of the results of qualitative interview is that the conclusions of the results may not be generalizable.

#### 3.2 Survey and data analysis

Lewicka (2008) defines place memory as a social phenomenon, by using the survey research method. To reach this conclusion, they investigated a number of issues, including reported place identity, place attachment and place memory for two cities.

In the second article, Brown (2007) examined the relationships between place attachment and landscape values using two measures of place attachment – a psychometric, scale-based measure (Williams, 2003). During this study, the survey is used to retrieve a dataset which will be further analyzed using different analysis (factor, regression and spatial cross-correlation).

In order to compare place attachment to place identity, Hernandez (2007) designed a questionnaire

composed of two sets of items to measure intensity of bonds. Both studies reveal a set of equivalent results confirming that when place of origin and length of residence are taken into consideration, place attachment and place identity are distinguishable but have interrelated bonds. And for this purpose, the questionnaire drawn up for this research has proven suitable.

Sevin (2014) uses a literature review, followed by the proposal of an analytical framework combining two network analysis methods – social and semantic – to evaluate place brands, called Define-Measure-Visualize (DMV). The ultimate objective is getting a better understanding of how places are perceived by different audiences. He finds that a place brand is a network of associations in people's minds and therefore two places might have distinct associations that can be neither compared nor ranked. So, the DMV method has its limitations, for it is highly dependent on the data gathering methods.

The last (fifth) survey article examines the effectiveness of efforts to brand Beijing, the capital city of China. By using a mail survey, Zhang (2009) finds a mismatch between the identity and core values as branded by the city government, and the realities as experienced by visitors and residents.

### 3.3 Case study

Yin (2009) defines four criteria for judging the quality of case study research designs. One of those criteria is the external validity. External validity and therefore generalizability for case study methods are by quantitative researchers generally regarded low because one cannot generalize on the basis of a single case (Bryman, 2008). Opinions on this differ however. Flyvberg (2006) argues that this is possible and this may be central to scientific development via generalization as a supplement or alternative to other methods. A good example of this is the research Peirce & Ritchie (2008) did. In their study to research the destination branding strategies of two national capitals, they generated precise results because the selection of cases was very specific. In their research they were able to generate this rich context driven information that would not have been accessible through other methods.

Rainisto (2003) uses a longitudinal design which studies the same single case at two or more points in time. The strengths of this study are twofold. Firstly, Rainisto uses a multiple case study design for its research. As Yin (2009) notes the evidence from multiple case studies is often considered more compelling, and the overall study is therefore regarded as

being more robust (Herriott & Firestone, 1983). Secondly a longitudinal study allows to specify how certain conditions change over time. Theory generated in this way could therefore be considered more convincing. Had Anderson & Niedomysl (2008) in another study used longitudinal elements they could overcome some methodological issues. They describe in their research that sometimes large gaps had fallen between the time the critical case took place and the time the official was interviewed.

The study from Balakrishnan (2008) uses the case study method to empirically test a theoretical model. Because the research is only based on secondary sources the reliability of this study is in danger. This cripples case study as a method because you cannot fully grasp the complexity of the phenomena. True-man et al (2007) use the case study in a similar way to use a theoretical model, however they base themselves on primary research, which make the results more compelling.

### 3.4 Content analysis

*A website can have a significant contribution in its branding communication process, when analyzing a place image. The study of Florek et al (2006) investigates place branding tools delivered through websites of city Councils. The report shows that a content analysis of websites can offer the first step in developing a tool to monitor and benchmark the tools of place identity and place brand communication in the online environment. One could argue that this approach does not include the inhabitants of the different municipalities, and therefore says little about the place image. Furthermore, the results do not answer the question why a certain tool on a website was used more than another tool. An advantage is that research is cheap because the websites are relatively ease accessible and analyzable.* However, the reactions of people on seeing images are investigated in the research done by Kerrigan, Shivanandan & Hede (2012). This resulted in a more realistic view on the used content. A weakness of this approach is that only a small amount of participants are involved. Secondly, this approach tends to have the character of a survey.

Content analysis can allow a certain amount of longitudinal analysis with relative ease (Bryman, 2008). The study done by Vanolo (2008), focuses on a new creative image for Turin in Italy, by researching various initiatives and promotional campaigns. Changes in time are being analyzed by looking at promotional material and policy documents in different eras. One can say that in researching a city

image over time variables differ from each other, because the perception of the image changes as well. Therefore a longitudinal approach is not appropriate in some cases, which researches an image of a place.

*In the case of the research, done by Shannon & Mitchell (2012), a town is being branded through a new building. The construction of this profit-oriented venue was the reason for a content analysis of policy documents that lay behind this development. However, the analysis of the researched content only served as a foundation for a subsequent survey.*

*While content analysis was used in the precious study as a foundation for a survey, the research done by Hanna & Rowley (2007) used content analysis as a foundation for a data analysis. After analyzing tourism and business literature, an answer could be given to the question which words were used the most in it. A limitation of this study is the lack of confirmation from other researches and other methods. For example, using a multi-method data collection could give more confirmation of this study.*

### 3.5 Participant observation

The five articles which have been analyzed to examine participant observation use this method to understand the relationships between people and place, which is essential for constructing a place brand.

Deener (2007) examined the effect of the development of a neighborhood brand on community life. The conclusion was that long-time residents with lower-income feel excluded by the brand. Trust and relationships had to be built via participant observation by regularly visiting neighborhood meetings and events over a period of three years.

Exclusion and privileging of values and social groups as a result of place branding was also studied in the article of Johansson (2012). This is directly related to place identity, because the meaning of the community has been reshaped by the brand.

Mazumdar (2000) aims to understand what the physical and social world of an ethnic enclave means for immigrants. By observing social interaction and participating in events and rituals, he discovers shared understandings which participants often tend to forget telling, because it is generally taken for granted.

In the article of Rowles (1983), where place attachment at an older age is studied, it shows that the elderly often take their sense of place attachment for granted and it is being left undiscussed. Because their place often had become an extension of them-

selves, participants found it difficult to articulate the basis or grounds of their attachment. Immersion of the researcher with the social and physical environment was required to provide more true and applicable research results and themes. Understanding and sympathy was gained. It also creates an atmosphere in which people were more willing to open up, revealing more dimensions of their experiences, resulting in insights out of reach through other methods.

Aitken & Campelo (2011) explore 'the concept of brand ownership as an extension of the social construction of place', in an island community. Participant observation is used to gain insight in their behavior which required constantly reflective thinking of the researchers. Disadvantages of the method are that it is time consuming, subjective and challenging to document the data. A possible threat is the relative small samples size.

## 4 CONCLUSIONS

After examining five different research methods in this paper, it can be said that there is no best method to study the effect of place branding on the identity of a place. This is because every method highlights other aspects of the topic and it depends on the aim, time and budget of the researcher what the scope and outcome will encompass. Using multiple research methods will help to get the most reliable and richest data possible. By comparing the different methods specific conclusions can be drawn.

The methods case study, interviews and participant observation are strong in explanation building. The articles show that these methods can make sense of other data collected through other methods. These methods proved to be suited to get a deep understanding of the case, as "places are constituted by a multiplicity of identities and attitudes" (Julier, 2005) and of the relationships between people and places. Answering these why- and how- questions are essential for constructing a brand or to see what effect a brand has on different social groups and thereby on place identity. Participant observation in particular is the only method that can be used to analyze the mismatch between what people say during interviews about what they believe and do and what they really do. However, the main disadvantage of this research is that it is a time-consuming process (Mack et al, 2005).

Case study research seems to be a very effective method for researching city branding strategies. This is illustrated by the fact that almost every study reviewed in this paper is related to a case. The case

study as a method in itself however has some limitations. As explained, external validity is generally regarded low for case study research. However as Peirce & Ritchie (2008) showed that with the selection of good cases results may very well be generalized. With the paper from Rainisto (2003) it is shown that a longitudinal design can generate more compelling results.

The rich image that interviews and case study provide of the topic is in contrast with survey and content analysis which aim to quantify relationships, but can miss nuance in this. Therefore in many cases it may be beneficial to use both qualitative methods in combination with surveys and content analysis.

The method survey has proven, after analyzing the different articles, to be useful for studying the topics place identity and place branding. Since these topics are so complex, the survey should be comprehensive enough and treat the various factors influencing the topic. With regard to city branding, using survey will give a clearer picture of how the residents and visitors see the branding. The importance of their participation is often forgotten. Furthermore, it is important to keep in mind that using surveys is relatively cheap. The time that is needed to collect the data varies. For web surveys, the entire data collection period is significantly shortened, as all data can be collected and processed in little more than a month (Bethlehem, 2012).

Content analysis is an effective and arguably the cheapest method when researching place branding. It is cheap and effective because policy statements in written form are relatively easy accessible and analyzable. However, when researching the effect of place branding on the identity of a place, content analysis is not a suited method on its own. The identity of a place can be subjective and content analysis does not, or only very little, involve participation beyond the researcher. A longitudinal approach in content analysis can be used because it can track changes through time, but only when other variables, like the perception of an image, stay the same. Furthermore, the results show that analyzing content is very useful as a good foundation for other methods, like a survey.

## REFERENCES

- Aitken, R. & Campelo, A. (2011) The four Rs of place branding, *Journal of Marketing Management* Vol. 27, Nos. 9–10, August 2011, 913–933.
- Anderson, I & T. Niedomysl (2008) Clamour for Glamour? City competition for hosting the Swedish tryouts to the Eurovision song contest. *Tijdschrift voor Economische en Sociale Geografie* 101(2): 111-125.
- Bethlehem, J. & S. Biffignandi (2012). *Handbook of Web Surveys. Wiley Handbooks in Survey Methodology*. New Jersey: John Wiley & Sons.
- Brown, G. (2007) The relationship between place attachment and landscape values: Toward mapping place attachment. *Applied Geography* 27: 89–111.
- Bryman, A. (2006) Integrating quantitative and qualitative research: how is it done? *Qualitative Research* (6), 97-113.
- Bryman, A. (2008) *Social Research Methods*. New York: Oxford University Press Inc (3rd edition).
- Curtis, J. (2001) Branding a state: The evolution of Brand Oregon, *Journal of Vacation Marketing* 7 (1): 75-81.
- Deener, A. (2007) Commerce as the Structure and Symbol of Neighborhood Life: Reshaping the Meaning of Community in Venice, California, *UCLA*.
- DiCicco-Bloom, B. & Crabtree, B. F. (2006), The qualitative research interview. *Medical Education*, 40: 314–321.
- Florek, M. (2006) City Council websites as a means of place brand identity communication, *Place Branding and Public Diplomacy* 2 (4): 276–296.
- Flyvbjerg, B. (2006) Five Misunderstandings About Case-Study Research *Qualitative Inquiry* 12(2): 219-245.
- Hanna, S. (2007) An analysis of terminology use in place branding, brand identity communication, *Branding and Public Diplomacy* 8 (4): 102-109.
- Hernandez, B. (2007) Place attachment and place identity in natives and non-natives, *Journal of Environmental Psychology* 27 (4): 310-301.
- Holsti, Ole R. (1969) *Content analysis for the social sciences and humanities*. Reading, MA: Addison-Wesley.
- Johansson, M. (2012) Place Branding and the Imaginary: The Politics of Re-imagining a Garden City, *Urban Studies* 49 (16): 3611-3626.
- Jacobson-Widding, A. (1983) Identity: Personal and socio-cultural A Symposium. Uppsala: Acta Universitatis Uppsaliensis.
- Julier, G. (2005) Urban designscapes and the production of aesthetic consent, *Urban Studies*, 42(5/6), pp. 869–887.
- Kavaratzis, M. and Ashworth, G.J. (2007) Partners in coffee shops, canals and commerce: Marketing the city of Amsterdam, *Cities* 24(1) 16–25.
- Kavaratzis, M and Ashworth, G.J. (2005) City branding: an effective assertion of identity or a transitory marketing trick?, *Tijdschrift voor Economische en Sociale geografie* Vol. 96, No. 5, pp. 506–514.
- Lewicka, M. (2008), Place attachment, place identity and place, *Elsevier*.
- Manzo, L.C. (2005) For better or worse: Exploring multiple dimensions of place meaning, *Journal of Environmental Psychology* 25, 67–86.
- Mack N., Woodsong C., MacQueen K.M., Guest G., Namey E.

- (2005) Qualitative Research Methods: A Data Collector's Field Guide.
- Mazumdar, S. (2000) Creating a sense of place: the Vietnamese-Americans and Little Saigon, *Journal of Environmental Psychology*.
- Peirce, S. & B. W. Ritchie (2008) National Capital Branding. National Capital Branding, *Journal of Travel & Tourism Marketing*, 22:3-4, 67-78.
- Rainisto, S. K. (2003) Success Factors of Place Marketing: A Study of Place Marketing Practices in Northern Europe and the United States. Doctoral Dissertations 2003/4. Helsinki: Helsinki University of Technology, Institute of Strategy and International Business.
- Rowles, G. (1983) Place and personal identity in old age: observations from Appalachia, *Journal of Environmental Psychology*.
- Sevin, H. (2014) Understanding cities through city brands: City branding as a social and semantic network, *Cities* 38: 47–55.
- Shannon, M. (2011) Deconstructing place identity? Impacts of a "Racino" on Elora, Ontario, Canada, *Elsevier*.
- Stephens Balakrishnan, M. (2008) Dubai – a star in the east: A case study in strategic destination branding. *Journal of Place Management and Development*, Vol. 1(1) 62 - 91.
- Tobias, S, Müller Wahl, P. (2012) Can place branding support landscape conservation in city-regions? A case study from Switzerland, *Land Use Policy* 30, 266– 275.
- Trueman, M., D. Cook & N. Cornelius (2007) Creative dimensions for branding and regeneration: Overcoming negative perceptions of a city. *Place Branding and Public Diplomacy*, 4(1) 29–44.
- Vanolo, A. (2007) The image of the creative city: Some reflections on urban branding in Turin, *Cities* 25, 370–382.
- Yacobucci, P. R. (2012) Introducing the Literature Grid: Helping Undergraduates Consistently Produce Quality Literature Reviews. In APSA 2012 Teaching & Learning Conference Paper.
- Yin, R.K. (2009) Case Study Research. Design and Methods. Thousand Oaks: Sage (4th edition).
- Zenker, S., Knubben, E, Beckmann, S.C. (2010) Your City, My City, Their City, Our City – Different Perceptions of a Place Brand by Diverse Target Groups, paper presented at *6th International Conference Thought Leaders in Brand Management*, Lugano - Switzerland, April 18-20, 2010.
- Zenker, S., & Braun, E. (2010) Branding a City - A conceptual approach for place branding and place brand management. Paper presented at the 39th European Marketing Academy Conference, Copenhagen, Denmark.
- Zhang, L. (2009), City branding and the Olympic effect: A case study of Beijing, *Elsevier*.
- Zhang, Y. & Barbara M. (2009) *Qualitative Analysis of content*. Place unknown: Publisher unknown.

# Dear shrinking city, how can we help you?

D.A.H. Reijnders, A. Bulut, J.G.M. Van Gorkom, X. Hua, D.F.M. Van Tetering  
*Architecture, Eindhoven University of Technology, The Netherlands*

**ABSTRACT:** Shrinking cities currently are a social challenge in many nations around the world, although shrinkage itself is not a new phenomenon. Shrinkage happens when a once metropolitan area experiences a significant population loss in a short period of time. Historically shrinkage derived from warfare, natural hazards and plagues but recently the most prevalent cause of such losses is deindustrialization (Oswald, 2006). Although the awareness for the phenomenon of shrinking cities has resulted in a worldwide discussion and has been researched thoroughly, the relation between research and practical relevance often remains unclear. How can solutions for shrinking cities be found when it is not clear how to properly describe this phenomenon? Which methods are most successful in describing the phenomenon of shrinking cities, in a way local management can implement the results obtained by using these methods into urban policy? The aim of this paper is firstly to elucidate five research methods for describing the issues of shrinkage. These methods are: (qualitative) interview, (quantitative) survey, data-based urban simulation modeling, case study and mapping. Secondly, these methods will be compared on the possibility of integrating them into local urban management frameworks on tackling the issues of shrinking cities. In conclusion, each of the five research methods is a valuable addition towards challenging the issues of shrinking cities. Through a combination of methods, which cover both the ability to describe shrinkage and predict the future of shrinking cities, a compelling research can be made. Based on these results, local and national authorities are expected to be able to further improve local policy to manage and monitor the issues of shrinking cities. Moreover, the results and conclusions are expected to contribute to the growth of knowledge about using different methods to research shrinkage in the field of urbanism.

**KEYWORDS:** *Urban shrinkage, Spatial analysis, Demographic change, Society, Methodology.*

## 1 INTRODUCTION

Urban shrinkage is not a new phenomenon: all throughout history populations have been decimated by warfare, natural hazards and plagues. However, the issue of shrinking cities due to demographic changes and out-migration arose in many places worldwide during the last decades. This type of urban shrinkage happens when a once metropolitan area experiences a significant population loss in a short period of time. For the past two centuries, global urbanization has progressed at a rapid pace. Nearly two percent of the total world population

lived in cities at the turn of the nineteenth century, whereas at the turn of the twentieth century almost 50 percent of the world population did (Oswald, 2006). Despite the growth of population in cities, more than a quarter of the world's largest cities shrank in the 1990's. The main impact factors are deindustrialization and demographic changes resulting in high vacancy rates, deterioration and demolition of buildings (Lauf et al., 2012). Besides these factors, shrinkage also derives from society-based causes such as fertility decline, changes in life expectancy, population aging and household structure (Haase et al., 2005). These developments create complex problems for urban planners and policy makers on housing markets, the utilization of infra-

structure, local labor markets and the viability of urban structures (Kabisch et al., 2006).

Previously stated shrinkage processes unveil that urban planners need to acknowledge urban regions without growth; cities losing inhabitants, vacant dwellings, unused commercial and residential areas and underused infrastructure (Haase et al., 2005). Oswalt (2006) states that the phenomenon of shrinking cities does not refer to a new phase of urban development, but to a part of this development that has been neglected as if it were taboo. This taboo-like thinking contributes to the challenge that is present today, where there is no common strategy to approach the challenges of shrinking cities.

Several attempts have been made to suggest strategies to save or plan shrinking cities (e.g. Rybczynski et al., 1999; Hollander et al., 2009; Pallagst, 2012), but no strategy is applicable on a global or European scale. Nowadays, there is an increasing worldwide awareness that cities and urban regions no longer grow self-evident, but often have to face structural changes as the result of a declining population. (Gatzweiler and Maretzke, 2008). The complex development of shrinkage should encourage developing new strategic goals for urban futures; thus treating shrinkage not just as a problem but also as a chance to reshape the built environment.

Although the awareness for the phenomenon of urban shrinkage resulted in a worldwide discussion and has already been researched thoroughly, the relation between research, practical relevance and applicability is unclear. How is it possible to find solutions for the problems caused by shrinkage when it is not clear how to properly describe this phenomenon? Different research methods are applicable to achieve this, however, not every method is successful in adequately describing shrinkage. This paper presents an analysis of several research methods that can be used to describe shrinking cities. It creates a clear description of what a shrinking city is, as a base for further implementation in local policies on how to answer to the challenges of a shrinking city. In other words: which methods are most successful in describing the phenomenon, the challenges and the future of shrinking cities, in a way local management can implement the results of these methods into urban policy? Five research methods are chosen to explicate, to answer this question. The different methods are chosen for their diversity; they form a proper mix of quantitative and qualitative methods. The first research method is qualitative interview: the collection of data by questioning people and following up or probing their answers. Secondly, quantitative survey is addressed. This method uses ques-

tionnaires to collect data about items in a population, which can be transformed into comparable statistics. This research is conducted by analyzing, synthesizing, and generalizing results from a larger sample. Thirdly, mapping is chosen as a research method whereby shrinking cities are described through the representation of quantitative spatial data analyses. Case study is the fourth research method: describing shrinkage in situations ranging from specific cities to international regions. Finally, data-based urban simulation modeling is studied. These models are used to better understand urban systems and to explain how they can support urban planning. Although most of these models focus on expanding cities, a growing number of them start to take shrinking cities into account.

This paper aims to present research methods for describing, suggesting solutions and predicting future scenarios of shrinking cities. Therefore, a qualitative analysis is performed through a literature grid. In this literature grid, five research methods, both quantitative and qualitative, are described in a well-organized structure in order to establish a comparable profile of each research method. Subsequently, each method is elucidated further, and conclusions are drawn on their advantages, disadvantages and applicability when researching shrinkage. Furthermore, a comparison is made between the five research methods regarding the understanding of shrinking cities. Finally, the conclusions are interpreted, and suggestions are given on how the different research methods contribute to the understanding of the phenomenon of shrinking cities in a way local management can implement research into local urban policy.

## 2 METHODOLOGY

To give a grounded review of each of the five research methods – qualitative interview, quantitative survey, mapping, case study and quantitative data-based urban simulation modeling - five references per method are selected to analyze, based on their relevance to the topic and methodology used. These references are research papers, books or research reports. In order to get a comparable profile of each research method, they are analyzed through a well-organized structured grid. The research methodology of this paper is therefore a literature grid, which gives a summary and synthesis of relevant literature on a research problem (Yacobucci, 2012). By systematically coding information from selected studies, common measures to describe the research

methods are developed. The literature grid provides a visual representation of the relevant literature and is constructed using a Microsoft Excel spreadsheet, to allow flexibility in length and width. The 25 references are coded according to the analyzed research method, each placed in a separate row. The columns are used to describe different elements per reference. Firstly, basic information of each of the five references is noted; name of the author(s), title, keywords, year of publication and the source. Secondly, the relation between the topic and the method used in the reference is described in the column 'how the method is used'. Next, the main findings of the reference related to the method are written down, giving a brief summary. Finally, the challenges and restrictions of the research method within the reference are noted in the column 'limitations'. Based on this literature grid, conclusions are drawn upon each research method in terms of advantages, disadvantages and applicability on the topic of shrinking cities.

The analyses of each research method are compared and discussed critically against the other methods, generating a broader insight on how the different research methods contribute to the understanding of the phenomenon of shrinking cities.

### 3 RESULTS

#### 3.1 Interview

Interview is a qualitative research method in which questions are posed to a particular target in relation to the subject. Participants in the study are usually people who are specialized in their field or profession. Opposed to quantitative research, in qualitative research only a few people are questioned. In this study, qualitative interview is elucidated as a research method to describe shrinking cities.

'From coal to cool' (Rich, 2013), analyses the revitalization of the small town of Scranton, and aims to understand the processes behind this, by 30 semi-structured interviews. The interviewer divides questions into four different categories: creative strategies for revitalization, revitalization and the creative class theory, social capital and revitalization, social capital in Scranton.

In 'Een kwalitatief onderzoek naar de motieven waarom mensen blijven wonen in krimpgebieden' (Oudijk, 2012) qualitative empirical interviews were held with inhabitants of Central Limburg (Region in the Netherlands). These interviews focused on the experience of shrinkage, the environment and

the reasons for staying in a shrinking city. Besides inhabitants policy makers were interviewed about two themes as well: policy and experience. The results of these interviews show that qualitative, empirical interviews generate many different opinions.

Francke (2007) describes the policy and position of the municipalities. In this research, a semi-structured interview is part of a case study that is not only used to collect data, but is also used to identify non-factual information and to verify if the factual information is correct. Van der Aa (2011) describes how shrinking regions can work together. In total, eighteen people were interviewed in the regions of Zeeland, Flanders and Parkstad Limburg. In these regions, individuals from public and private organizations were interviewed. Additionally, more persons were questioned from different sectors, e.g. the housing sector, healthcare and education.

'E-motion pictures' (Thelen, 2014) compares different cultural influences on shrinkage through a structured interview with people from different municipalities.

The interview as a research method enables studying the subject thoroughly and leads to understanding the motives of a respondent. The result can be compared with other data that has been gathered to find the resemblances. The disadvantage of using qualitative interviews when researching shrinkage is that the interviewer is able to influence the respondent by adjusting the questions to the answers, so no general conclusions can be drawn in relation to the whole target group.

#### 3.2 Survey

Within the theme of shrinking cities, qualitative research data is usually accompanied by quantitative surveys. Data is required to describe the demographic changes on the labor market, in housing, and public services. These types of data are usually collected from statistical institutes. In order to understand the impact of shrinking cities on its residents, data can be collected by questionnaires.

'Urban Shrinkage in Europe' (Wolff, 2010) aims to present an overview of the distribution of shrinking cities throughout Europe. Therefore, a quantitative analysis is conducted. Using data for European cities from Urban Audit expands this approach. Unfortunately, not all of these indicators are available for each city in the same quantity, which is due to the deficiency of census surveys. Another reason is that certain indicators are merged together out of several collected variables. Therefore reconstruction of data is necessary by using extra indicators.

The first step in the study of 'Demographic change and knowledge development' (Galjaard, 2014) is the collection of data and the initial analysis of the projects to get a first impression of the topics addressed. Specific project documents and data are obtained from the CENTRAL EUROPE program. In addition to these documents relevant information was gathered through the projects' websites. The Demography Report is used as well, which is published every two years by the European Commission and it provides the latest facts and figures. The data shows the main trend of demographic changes in public services, the labor market, challenges on the quality of life and governance in shrinking cities.

In 'Errors Expected' by Wiechman (2008), the required data is collected from Urban Audit, a European database for comparative analyses of EU cities, and from Statistical Offices of Laender in order to represent the demographic shrinking processes. In 'Inequality and Urban Shrinkage' (Moraes, 2009), data is obtained from Observatório das Metrópolis/Governo do Estado de São Paulo to describe how inequality might specifically have influenced population mobility. Also urban morphology in Brazil is pointed out.

For the research on the impact of shrinkage on the inhabitants of shrinking cities, like in 'Happiness in shrinking cities in Germany' (Kabisch et al., 2006), the questionnaire method is used to find out overall life-satisfaction and satisfaction within particular domains.

### 3.3 Mapping

As shrinkage is a spatial phenomenon defined by data and information based on space dimension relying on spatial information (Montrone and Perchinunno, 2013), the representation of this data, mapping, can be used as an accurate research method. The 'Atlas of Shrinking Cities' by Oswald (2006) presents maps of shrinking processes of spatial data and makes it possible to see them within the overall context of global developments so that their status can be assessed. Through innovative cartography and graphics, complex information and conclusions are easily visually comprehensible. Murgante and Rondono (2013) take the representation of spatial data one step further by analyzing the spatial dimension of statistical data. By adopting spatial autocorrelation techniques, the identification of spatial concentration of urban shrinkage is achieved at neighborhood level. With this information maps are created, which show the dispersion of shrinkage through local indicators like immigration or aging. Both ways

of representing spatial data result in static maps although spaces are not constituted territories, but dynamic and developing spaces undergoing slow or even rapid transformation.

A relatively new way to represent quantitative spatial data is through GIS, a geographic information system that stores, manages, processes, analyses, integrates and presents spatial data or information about geographic objects (Pinho and Oliveira, 2009). GIS as a dynamic framework produces dynamic maps. Pinho and Oliveira (2009) conduct research on the potential of GIS in the study of urban historic cartography. The largest advantage of GIS is that it enables a new representation of the (layered) spatial characteristics of urban phenomena. However, the lack of adequate representation of data and maps is a limitation, underlining the dependency of GIS on source data. Banzhaf et al. (2005, 2007) further elucidates the accuracy of GIS by describing data capturing. In both references, urban shrinkage is researched by means of urban remote sensing, a way of capturing data used for GIS through satellites (e.g. Landstad, VHR, hyperspectral). Although the high level of positional accuracy that these land surveyors provide is eminently valuable, it has to be taken into account that the accuracy of GIS still depends upon its source data, and how it is encoded to be data referenced.

### 3.4 Case study

Shrinking is a phenomenon that is inseparably connected to cities, making every research on this subject a case study in a certain way. Therefore using case studies as a method to research shrinkage is compelling, as it takes the city itself into account as a parameter. When looking at a specific city, for instance Leipzig (Florentin 2010), an in-depth case study provides a clear image of the strategies and their effect on the city. Although the research elucidates the situation of Leipzig perfectly, the downside of this focus is that a direct translation of the results to other cities might not be possible. The usefulness of the results of a single case study can be increased by comparing the case to cities with successful outcome to confirm the strategy used in a city (De Bruin, 2011). Multiple case studies are used as a reference to investigate the necessary actions for the researched case. The results of this research are concentrated on the specific case.

To achieve a founded view on several strategies an equal comparison between multiple cities is better suited for this (Van Tuijl and Bergevoet, 2014). Comparing top-down and bottom-up approaches in a

variety of cities creates the possibility to draw some general conclusions in a research about strategies for shrinking cities. With a wide range of cities a sort of catalogue with examples of solutions is created. An overflow of information can be prevented when the range in the research field is represented by a small number of case studies (Pallagst, 2009). The cases follow a different course of shrinkage and have different strategies to deal with the problems that come with a shrinking city. The case study can also be used to find the effect of a strategy on different cities by comparing these through a certain standardized analysis as DPL (Duurzaamheidsprofiel van een locatie – Location sustainability profile). The case study here is used as a check afterward to measure the impact of shrinkage policy in different regions in an even way (Dreijerink et al., 2012).

### *3.5 Statistical analysis by urban simulation modeling*

Shrinking cities are characterized by an oversupply of houses, which results in residential vacancy (Haase et al., 2010), and because shrinkage is increasingly occurring worldwide it is a hot topic among urban planners (Oswalt, 2006). They face complex problems caused by vacancy, demolition and the handling of former urban industrial areas in the inner city (Lauf et al., 2012). Urban planners can apply different types of simulation models to research change in urban land-use, housing demand and residential mobility processes and patterns. Four different modeling approaches are used: system dynamics, linked transport – urban models, cellular automata (CA), and agent-based modeling (ABM) (Schwarz et al., 2010). The most promising of these four approaches in terms of analyzing and modeling urban shrinkage seems to be ABM, because these models are able to integrate social science knowledge by implementing decision-making processes of households, planners, investors and building owners (Schwarz et al., 2010).

Although ABM is developed mostly for growing cities in industrialized countries, contemporary agent-based models can compute both growth and shrinkage processes, future housing demand and possible demolition areas (Haase et al., 2010) and help urban planners to better understand housing preferences (Lauf et al., 2012). Urban simulation models have many benefits, as described previously, although the deficiency of the possibility to use empirical data is a disadvantage. Also decreasing population density, decline in the average household size, declining birth rates and suburbanization are

often not implemented in these models (Haase et al., 2010). New models should be able to predict future scenarios (population growth, stagnation or shrinkage) and show how desirable situations can be achieved or supported (Kabisch et al., 2006). These models could act as a tool to test social science hypotheses, allowing the quantification of land-use scenarios in urban regions (Haase et al., 2010). Next to this, empirical research should be conducted to mirror the results from urban simulation models (Kabisch et al., 2006).

## 4 CONCLUSIONS

All five methods have been addressed, and their suitability towards the problem of describing shrinking cities as well as their use to discuss strategies for the future of shrinking cities have been analyzed. The research methods all have different types of results to describe the phenomenon of shrinkage. The main findings on each method are discussed below.

Qualitative interviews provide in-depth information about a topic, as they underline the reasons behind people's actions. People leave shrinking cities for different reasons such as education or work. The figures of this out-migration can be proven by collecting quantitative data. Interviews, however, can show the reasons behind leaving shrinking regions. It is important that the interviewer asks open questions so a person's motives are being acquired and questioned. Qualitative interviews enable using and explaining data obtained from quantitative research methods like the survey. Also, the results of interviews need to be confirmed by quantitative data that was gained from different research methods. Qualitative interviews are best used to describe the problems of shrinking cities and provide solutions, although this type of interview generates many different opinions. This makes it difficult to generalize the outcome of interviews (Oudijk, 2012).

Quantitative survey proves to be an important tool for qualitative research on the theme of shrinking cities. In order to describe various situations and problems in shrinking regions, data can be collected in two different ways: via statistical institutes and via questionnaires. There are limitations on obtaining data from institutes. Firstly, the most recent facts and figures are not always available. So it is important to choose the source that provides the most recent information. Secondly, a single source cannot always provide all the data that is required

for the research. Therefore it is necessary to expand the statistical data by finding and adding other sources. As for the questionnaire method, the latest data can be collected directly. These data can show the impact of shrinkage on the inhabitants of shrinking regions, although it is often difficult to obtain enough responses from the target group. The data obtained with quantitative surveys can be organized and analyzed, after which the results can be applied to mapping, modeling, and case studies (Kabisch et al., 2006). Alike the results of the qualitative interview method, the results of the quantitative survey can serve as a basis for further research on the topic of shrinkage.

The representation of quantitative spatial data can be done through mapping. This method can be divided into static- and dynamic mapping, where dynamic mapping is more valuable in relation to describing shrinking cities. Oswalt (2006) and Murgante (2013) provide elegant maps from micro- to macro level, but are not suitable when challenging a shrinking city, due to their capture of time on a specific moment. In contrast, GIS (Pinho and Oliveira, 2009; Banzhaf et al., 2005, 2007) proves to be a dynamic framework to represent the evolution of urban form, continuously open to the addition of, and articulation with, other morphological and planning data and information. The level of accuracy of GIS is high, but still depends upon source data and how it is encoded. Next to describing the ongoing situation, GIS is a possible method to follow and map the impact of an implemented strategy to deal with shrinkage.

The case study method works well as a tool when in depth knowledge about a city is needed in a research, as shrinking is a phenomenon that is inseparably connected to cities itself. The specific results of the case study clarifying one situation can be useful, although this is a disadvantage as well. When a broader view on the problem of shrinking cities is investigated, these specific results are not always applicable. This can be overcome by making a comparison between multiple case studies: either as an equal comparison to get a general overview on strategies or the problem field (Van Tuijl and Bergevoet, 2014), or as a tool to confirm the results of a particular case (De Bruin, 2011). Using multiple other case studies to describe the best possible strategies for a city works as a practical tool. In conclusion, the method can be used properly to describe both the problems of the shrinking city and implemented strategies.

Because urban shrinkage is increasingly occurring worldwide, urban planners need to research

land-use change, housing demand and residential mobility patterns (Banzhaf et al., 2006). To conduct research on the implications of these factors and demographic changes (decreasing population density, decline in the average household size, declining birth rates and suburbanization) on an urban level, planners could use urban simulation models. Four different modeling approaches are available, from which agent-based modeling (ABM) is most promising to analyze and model urban shrinkage (Schwarz et al., 2010). Recent simulation models show that currently shrinking cities and regions can expect different futures (Lauf et al., 2012); thus exploring these possible scenarios with ABM should be encouraged. Disadvantages of this method are the deficiency of empirical research to mirror the modeling results (Kabisch et al., 2006; Banzhaf et al., 2006) and the complicated validation of these results (Haase et al., 2010).

In conclusion, each of the five research methods is a valuable addition towards challenging the issues of shrinking cities. The possible benefits and handicaps of each method are explained. Where one method is more suitable to describe shrinking cities, others might be more applicable to suggest solutions and predict future scenarios. Through a combination of methods, which cover both the ability to describe shrinkage and to predict the future of shrinking cities, a compelling research can be made. This combined research is able to help local and national authorities to improve their policies, and in addition to this manage and monitor the issues of shrinking cities.

## REFERENCES

- Aa, K. van der (2011). Samenwerken in krimpregio's. Master thesis. University of Tilburg, Netherlands.
- Banzhaf, E., Kindler, A., & Haase, D. (2005). Research on negative urban growth by means of remote sensing and GIS methods. *Int. Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 36, 8.
- Banzhaf, E., Kindler, A., & Haase, D. (2006). Monitoring and Modelling Indicators for Urban Shrinkage-The City of Leipzig, Germany. In *Proceedings of the Second Workshop of the EARSeL SIG on Remote Sensing of Land Use and Land Cover*.
- Banzhaf, E., Kindler, A., & Haase, D. (2007). Monitoring, mapping and modelling urban decline: a multi-scale approach for Leipzig, Germany. *EARSeL eProceedings*, 6(2), 101.
- Bruin, G. F. de (2012). Herstructureren van de woningmarkt

- en bedrijventerreinen in Parkstad Limburg [Innovatieve Planologie in Krimpende Gebieden].
- Delken, Ellis (2008) "Happiness in shrinking cities in Germany." *Journal of Happiness Studies* 9.2 213-218.
- Dreijerink, L., Van der Noort, L. A. U. R. A., & Kortman, J. (2012). Sustainability and shrinkage: three case studies in Zuid-Limburg (Netherlands). *Demographic Change and Local Development: Shrinkage, Regeneration and Social Dynamics*.
- Florentin, D. (2010). The "Perforated City:" Leipzig's Model of Urban Shrinkage Management. *Berkeley Planning Journal*, 23(1).
- Francke, A.J. (2007). *(On)gebaande paden in een krimpregio*. Masterthesis. Erasmus University Rotterdam, Netherlands.
- Galjaard, R. (2014). *Thematic study: Demographic change and knowledge development in the CENTRAL EUROPE Programme*.
- Gatzweiler, H.-P., Maretzke, S. (2008): Cities in the demographic transition – Urban development between suburbanization and reurbanization, growth and decline. *Maretzke, S. (ed.): Cities in the demographic transition. Workshop "Cities and Regions"*, 12-6/7-2007, Berlin
- Haase, D., Lautenbach, S., & Seppelt, R. (2010). Modeling and simulating residential mobility in a shrinking city using an agent-based approach. *Environmental Modelling & Software*, 25(10), 1225-1240
- Hollander, J. B., Pallagst, K., Schwarz, T., & Popper, F. J. (2009). Planning shrinking cities. *Progress in Planning*, 72(4), 223-232.
- Kabisch, S., Haase, A., & Haase, D. (2006). Beyond growth—urban development in shrinking cities as a challenge for modeling approaches. In *Proceedings of the IEMSs Third Biennial Meeting: "Summit on Environmental Modelling and Software"*. International Environmental Modelling and Software Society, Burlington, USA July.
- Lauf, S., Haase, D., Seppelt, R., & Schwarz, N. (2012). Simulating demography and housing demand in an urban region under scenarios of growth and shrinkage. *Environment and Planning-Part B*, 39(2), 229.
- Montrone, S. & Perchinunno, P. (2013). *Statistical Methods for Spatial Planning and Monitoring*. Springer.
- Moraes, S.T. (2009) "Inequality and Urban Shrinkage: A Close Relationship in Latin America." *The Future of Shrinking Cities-Problems, Patterns and Strategies of Urban Transformation in a Global Context*. Pallagst, K. (Ed). Berkeley, USA.
- Murgante, B., & Rotondo, F. (2013). A Geostatistical Approach to Measure Shrinking Cities: The Case of Taranto. In *Statistical Methods for Spatial Planning and Monitoring* (pp. 119-142). Springer Milan.
- Oswalt, P., & Rieniets, T. (2006). Atlas of shrinking cities. *Ostfildern: Hatje Cantz*.
- Oudijk, P. (2012). *Een kwalitatief onderzoek naar de motieven waarom mensen blijven wonen in krimpgebieden*. Masterthesis. University of Amsterdam, Netherlands.
- Pallagst, K.M. (2009). Shrinking cities in the United States of America: Three cases, three planning stories. *The future of shrinking cities: problems, patterns and strategies of urban transformation in a global context*, 81-88.
- Pallagst, K.M. (2012). Shrinking cities in the United States: policies and strategies. *Demographic Change and Local Development: Shrinkage, Regeneration and Social Dynamics*.
- Pinho, P., & Oliveira, V. (2009). Cartographic analysis in urban morphology. *Environment and planning. B, Planning & design*, 36(1), 107.
- Rich, M. A. (2013). "From coal to cool": The creative class, social capital, and the revitalization of Scranton. *Journal of Urban Affairs*, 35(3), 365-384.
- Rybczynski, W., & Linneman, P. D. (1999). How to save our shrinking cities. *Public Interest*, 30-44.
- Schwarz, N., Haase, D., & Seppelt, R. (2010). Omnipresent sprawl? A review of urban simulation models with respect to urban shrinkage. *Environment and planning. B, Planning & design*, 37(2), 265.
- Tuijl, M. van, Bergevoet, T. (2014) *Een internationale vergelijking tussen krimpregio's*.
- Thelen, M.M. (2014). *E-motion pictures: culture for attachment of inhabitants in shrinking areas in Parkstad limburg*. Masterthesis. Delft University of Technology, Netherlands.
- Wiechmann, T. (2008) "Errors Expected—Aligning Urban Strategy with Demographic Uncertainty in Shrinking Cities†." *International Planning Studies* 13.4 p.431-446.
- Wolff, M. (2010) Urban Shrinkage in Europe. *Chair of Spatial Planning\_TU Dresden, Working Paper*. (2010-06)
- Yacobucci, P. R. (2012). Introducing the Literature Grid: Helping Undergraduates Consistently Produce Quality Literature Reviews. In *APSA 2012 Teaching & Learning Conference Paper*.

# Research methodology for social segregation in residential landscape of European cities.

D.M. Wehr, A. Bordian, J.P.R. Mattheij, T.K.A. Persoon & J.P. van Rossum

*Architecture, Eindhoven University of Technology, The Netherlands*

**ABSTRACT:** The current decline of integration of the social factor in architecture is a common matter of concern of the authors. Present day, social segregation in various environments is a problem that a wide range of countries have to deal with. History has shown that aspects like economy, politics, and ethnicity have a certain influence in the built environment and its spatial configuration. During the past decades international discussion on the right to equal living conditions for everyone and its influence on the built environment had a major impact on how people look at social inequalities.

The aim of this paper is to investigate specific methodologies used to research social inequality in the residential environment of European cities. The authors attempt to outline different approaches that emerged from multilateral analysis of patterns of social behaviour in urban space. The target group of the topic in question are unprivileged members of society, the research seeks to discover the right tools to investigate the relationships of this group in an urban environment.

In order to conduct this delving exercise the authors have used a literature grid to review 5 sources concerning one of the five different methods identified. The methods were investigated and compared within the research on the chosen topic. The authors were able to conclude on the methods in the following results. Statistical analysis of demographic data though is a valid method of data interpretation and structuring is difficult to be used independently for a research purpose thus should be accompanied with more spatial ways of representation. Surveys are used as a way to gain more knowledge about a target group. Ethnography used to research social inequalities emerges as a challenging method as it is difficult to be objective for the researchers. Similarly to demographic analysis this method should be used in combination with other methods to achieve more valid results. Conducting interviews can be recognized as valuable yet quite subjective method of research in the investigated field. Likewise the other methods, it can be positive for the result of research to include a multi-methodological approach. Case-studies have the benefit of incorporating within themselves multiple approaches and stand on comparative basis but nonetheless must be used critically.

**KEYWORDS:** *Segregation, Social inequality, Residential space, Methodology, Immigrants, European cities*

## 1 INTRODUCTION

This paper represents a group effort to undertake a comprehensive inspection on the topic of residential segregation in European cities. The paper is structured cohesively in order to introduce the reader into the essence of the research.

Firstly, the rather broad dispute of segregation is brought into light. The authors discuss the form of segregation that sorts population groups into various neighbourhood contexts and shapes the living environment at the neighbourhood level of the city. The general points of concern are exemplified in the at-

tempt to approach the question of appropriate methods of research. The authors emphasize the common approach to the research question. Along with the introduction of the literature grid used for conveying this paper the authors highlight the value of deploying this method. The core of this paper are the results summarized from the evaluation of the 5 individual sources. The referenced methods are questioned and judged in terms of applicability. In conclusion the authors have pursued the goal of bringing together the essence of good research methodologies. The methods were confronted in order to exhibit the common and individual advantages and disadvantages.

The motivation for the chosen topic came from a mutual interest in the influence of social aspects on built environment and its spatial configuration. The authors believe that architects should contribute more to social aspects of their profession. Thus a investigation in good methods of research for understanding the problem of segregation is important and beneficial in perspective. In this way the inclination to conduct research in a field of social inequality in built environment is motivated by the desire to contribute to this imperative topic.

In recent decades, voluminous attention has been given to social inequality, especially in housing environments. Researchers through their work are trying to acquire understanding about the complicated process ongoing in the residential environment. Shifting ideas about how the housing estates should be formed has influenced the ongoing debate on how their spatial qualities relate to the social behaviour. Urban design is strongly and fundamentally concerned with the relation between built forms and the social structures that come into existence within them (Lawton, 2013).

Residential segregation—the concentration of ethnic, national-origin, or socio-economic groups in particular neighbourhoods of a city—is widely perceived as the counterpoint of successful immigrant integration. Studies have linked this pronounced side effect of immigration and urbanization to a number of implications of poor well-being for individuals and communities, including unemployment, poor health, and social rifts. In the not so distant past the voluminous migration trends present in Europe have made the topic one of the most up-to-date problems of social urban life.

*“Urban segregation is not a frozen status quo, but rather a ceaseless social war in which the state intervenes regularly in the name of “progress,” “beautification” and even “social justice for the poor” to redraw spatial boundaries to the advantage of landowners, foreign investors, elite homeowners, and middle-class commuters” (Mike Davis, 2006, p.98 – Planet of the Slums)*

The current world of urban design and architecture observes a reverse in theory and practice. This is associated with the disposition to promote more traditional ideas about how the city should be shaped and how it should function. Since the state of a utopian city with a social equity cannot be reached, the investigated field focuses on understanding the cause-effect relationship of residential segregation. The purpose of that is to discover better methods of

stopping social injustice and promoting everyone's right to equal living conditions within the city in the hope of improving quality of life.

The predicament of residential segregation is a relatively new field of study. The methods used to facilitate the understanding of urban processes are continuously developing. Researchers working on the challenge of creating better environments for living refer to well-known techniques widely used in relevant fields. This report explores the methods used to investigate the problems ethnic residential segregation causes for individuals and communities. The authors have identified the methods most commonly employed to observe and understand social inequalities, which are surveys, interviews, ethnography, statistical analysis of demographic data and case studies.

Surveys are a very useful way to create a better understanding of the unprivileged groups of society. Surveys are divined as a series of questions to gather information about what most people do or think about a specific subject. They are a very common way to collect quantitative data. Conducting a survey is a relative effortless way to gather the data. Objective information like ethnicity, financial status, health situation or relational status can be successfully collected. Surveys are also a very effective way to gather subjective information like political preferences. In many social studies surveys are an initial source of quantitative data.

Interview is a type of conversation with purpose of gathering information (Berg, 2000) and it can have various forms. Its purpose and research question strongly influence the choice of that form. According to Berg (2000), interview can be standardized, unstandardized and semi-standardized. Difference between each of those categories is mostly in the level of preparation of questions to be asked during the process of interviewing. Research with help of interviews is a popular method in social sciences as it aims to understand perceptions and experiences of certain groups of people and thus can be a valuable source for addressing assumptions.

Statistical analysis of demographic data in the context of research into residential segregation is a method that involves statistical operations for the collection, analysis, interpretation, presentation, and organization of demographic data, gathered in annual censuses. The most relevant information comes from the migration and the representation of ethnicity rubrics, which lay at the basis of the problem of social segregation. The sources that talk about employing statistics refer to various indexes and operations that have in common the goal to simplify and

increase the accessibility of the data set for the purpose of attesting or denying the hypothesis in question. In the results section the advantages and disadvantages of this method will be elucidated.

Case research is an in-depth investigation of a problem in one or more case sites over an extended period of time. Data is collected using a combination of interviews, personal observations, and internal or external documents. Analysis tends to be qualitative in nature, but heavily contextualized and nuanced. However, interpretation of findings may depend on the observational and integrative ability of the researcher. Lack of control may make it difficult to establish causality, and findings from a single case site may not be generalized to other case sites. Replicating and comparing the analysis of other case sites can improve the reliability of the research.

Ethnography is a research method used for the study of people and cultures, with the purpose of exploring cultural phenomena. The researcher observes a society from the point of view of the studied group. Ethnography can use various methods in order to conduct the research, for example interviews (Hermans, 2010; Engbersen et al., 2006; Pels & Haan, 2007), field observations (Engbersen et al., 2006; Jong, 2013), cartographic and police data analysis (Engbersen et al., 2006) or a historical review (Silverstein, 2005), depending on the research topic.

Approaching this research the authors stated a clear hypothesis and connected to it main research question. Investigating all five chosen methods could bring valuable results, yet without a question the drawn conclusions could prove to be not relevant and thus the paper would lose its coherency. The authors' hypothesis was based on an expectation that the analysed methods would be highly correlated and work in the best manner to examine the social problems. The hypothesis was strongly concerned with similarities of the chosen methods and finding common ground between them. The authors believed that the chosen ways of researching will render as relevant to the investigated theme on a certain level, mostly because they were already widely used in it. That is why the paper aimed to understand if there are any similarities between investigated methods and if yes how does it change its level of usefulness for researching social inequalities. The research question that the authors stated was: to what degree of efficiency do the identified methods relate to the problem of residential social segregation?

## 2 METHODOLOGY

In this paper the authors focused on the relevance of different methodology in social sciences in order to form an outcome which emphasizes aspects of efficient research on social inequality in the housing environment of European cities. The paper draws upon a literature review conducted by the authors. The literature grid that was created served as the base material for the authors to develop an understanding of the topic and to eventually succeed in the analysis for writing this paper.

When the preliminary concept for the research has been decided on, the authors looked for sources that are concerned with the topic. The search for materials already existing in the research theme is an essential part of the process (Berg, 2000). Each of the authors chose five sources from the extensive academic digital libraries, relevant to one of the five selected research methods. This was effectuated with means of literature review of existent material that uses a given method. Literature review consist of all the activities a researcher undertakes in order to gather information about investigated topic and address it competently (Groat & Wang, 2002). Literature review was not just a simple gathering of information about the methods used in the researched field but rather a careful process of arranging the knowledge in a form of consistent system. Therefore all the acquired information has been brought together in a form of literature grid. The careful choice of a cohesive thematic was motivated by the intent to have a common ground for the comparison of the results in a latter manner.

The primary literature grid consisted of the following categories - author of the paper, title, purpose or research question, conclusions, used method, keywords. The selected sources have been analysed through means of this division and then compared in order to draw on coherent and appropriate conclusions. As Yacobucci (2012) states in his paper, the literature review is a summary and synthesis of relevant literature on a research problem. The authors of this paper were aiming to achieve a literature grid that was accordant with this statement.

In order to conduct a successful research the first step is to carefully get acquainted with the research topic and deepen one's knowledge on the subject. Thus the authors first have looked into the essence of the problem of segregation. To be able to focus on the proposed hypothesis the authors have engaged themselves in carefully studying the chosen sources. In order to summarize the noted information the authors have made use of the literature grid. This method of counterpointing data is realized by pinpointing the most relevant data of the text in a grid. The grid categories were defined by the authors. First there were the columns that helped to identify the author, title and research question. The following rubrics were selected to help the authors analyse the result of the paper. It was important to precisely identify the method

used in the paper. Then a column was given to summarise the conclusions of the paper. In order to have quick understanding of a given paper the section stating the key words was added.

The goal of this chosen methodology was to draw upon the experiences of all authors analysing different sources. Creating a grid with synthesis of chosen articles enabled the authors to acquire greater knowledge about other parts of results and therefore draw conclusions. The grid proved to be a successful way to summarize and synthesize papers. The chosen categories represent important aspects of the papers. The main advantage of the grid is that it presents the papers in an organized way and therefore enables keeping track over them while writing. Although the literature grid was a good way to acquire sufficient knowledge and draw conclusions, the authors can state that the grid with more categories could be more beneficial for the research. More attention should have been brought to research process, with emphasis on the method used. The authors felt the need to occasionally re-read parts of articles because of insufficient understanding that the grid failed to provide. In overall, the authors believe that the literature grid was an effective method.

### 3 RESULTS

In line with the topic of residential segregation in European cities, the authors were interested to know what are the methods used to determine the factors that influence and find expression in the phenomena of residential segregation. In this section results from analysis of individually chosen research methods will be presented. Each of the authors have investigated a separate method and tried to conclude the main findings through comparative analysis of the chosen sources.

#### 3.1 Interviews

Interview as a qualitative method of research is widely used in social sciences. Interview perceived as a conversation with a purpose of gathering information (Berg, 2000) is compatible with the way authors of analysed sources use it. Lawton (2013) states that as a method for researching social interactions, interview enabled him to acquire broad spectrum of responses and experiences which was important for his goal. Using a quantitative method wouldn't bring a variety of personal perceptions connected with the investigated theme and the similar view is shared by Norris (2006). Yet in contrary to the former, the latter author argues that although acquired results present a valuable view, a survey

with bigger variety of respondents could bring a different outcome.

Main research question will influence interpretation of the responses of interviewees. Existence of such a research question is a big advantage of interviewing as it enables drawing conclusions that are a connected to the purpose of investigation. Additionally most of the analysed sources use semi-structured interview which consists of partly prepared questions. This can assure a level of flexibility to react to respondents, which seems to be essential in social sciences. It is possible to point out that interview is a strongly interpretative method, in a meaning that responses can be construed in a personal way as well as the questions asked are influenced by individual manner of an interviewer.

Preparation for the interview is of great importance. Correct level of language and adjustments connected with culture of target group are essential (Berg, 2000), especially in research about society. Søholt (2014), Dhalmann (2013) and Gruner (2013) describe preparation for the process of interviewing as a careful procedure of picking interviewers who speak the language of participants and translating questions. Choosing appropriate interviewees is a difficult process which, both Lawton (2013) and Dhalmann (2013) solve with a 'snowball'<sup>1</sup> approach. Other authors choose the participants in a way of social networking or a questionnaire. All the described information in addition with the long process of interviews themselves presents interviewing as a time-consuming method that requires some level of preparation.

Understanding the perception of specific phenomena of participants is the main goal of interview and having that in mind it can be a very powerful method of researching. Although all authors mention a need for further investigation, it can be assumed that this doesn't put interview in a box of invaluable methods for social science.

#### 3.2 Surveys

In social research surveys are an important method of research. Large groups of people can be asked questions about various topics. The creation of the questionnaire is a labour intensive task for the researches. Surveys work better when the answers to the questions are predictable and comparable since.

<sup>1</sup> Snowball sampling - snowball sampling is a non-probability sampling technique that is used by researchers to identify potential subjects in studies where subjects are hard to locate; (<https://explorable.com/snowball-sampling>)

Collecting the replies can take a large amount of time but is quite extensive work (Ellemers & Box, 1998).

Some large organizations conduct surveys annually. Once the survey is made repetition with different populations is easily achieved. An organization that conducts many surveys is the city of Amsterdam. It creates The Amsterdam Civic Participation Survey (Amsterdamse Burgermonitor), The Amsterdam Drug Survey and the Amsterdam Health Survey. The results of these surveys are available for other researchers (Logan, 2006). The enormous amount of data of these surveys is a very valuable source. The researchers are not burdened with the creation of the questionnaire nor with the waiting time for the response and can focus on the analysis of the data (Tillie, 2007).

A difficulty with surveys is the response rate. A possibility is a very low response rate which renders the survey unusable due to a too small population. Another possibility is different response rates among certain groups in the population. These difficulties can be tackled with more labour intensive ways of requesting responses (Laere et al., 2009). Large random-sample surveys can also be used to identify smaller subgroups which can be send more detailed surveys. Data gathered with surveys are also hard to interpret. It requires thorough analysis and a large amount of statistics (Zorlu, 2012). A research conducted with surveys is powerful way to gather information about the social interaction of large groups or even about specific subgroups.

### 3.3 *Ethnography*

Ethnography in this topic is used to show what cultural background lies behind the behaviour of different types of immigrants, and thus giving an insight in how part of the troubles multicultural societies nowadays face could be prevented or solved.

Because of the ways an ethnographic research can be conducted, it often overlaps with other research methods; for example interviews (Hermans, 2010; Engbersen et al., 2006; Pels & Haan, 2007), field observations (Engbersen et al., 2006; Jong et al., 2013), cartographic and police data analysis (Engbersen et al., 2006) or a historical review (Silverstein, 2005). It depends on the research topic which method can be used, and whether just one method (Hermans, 2010; Pels & Haan, 2007; Jong et al., 2013) is sufficient to use, or whether more methods (Engbersen et al., 2006; Silverstein, 2005) are required.

To keep the results as objective as possible, it is important to combine field observations with other methods, since field observations can turn out to be too much influenced by 'familiarization' (Jong et al., 2013). Other

problems can occur when ethnographic researches of different time periods are being compared, since cultures change over time (Pels & Haan, 2007; Silverstein, 2005). How can one guarantee any correlation in this case? In what way can one show relevance to a problem of a certain discovered characteristic? Engbersen (2006) used a regression analysis to test an assumption to be crucial, to cover the latter of these two questions.

The authors' topic is similar to the one used by Engbersen et al. (2006), which means that using a combination of methods is necessary to give a clear ethnographic insight and thus to conduct a proper research in the authors' case.

### 3.4 *Statistical analysis of demographic data*

In social sciences, statistical analysis is at the heart of most observations. A large amount of papers that discuss our topic refers to statistically analysed demographic data. Statistics is the study of the collection, analysis, interpretation, presentation, and organization of data. It is primordial to make sense out of the overwhelming amount of data that is being collected and be able to conclude on a given question based on the analysis. The chosen literature is representative of observational studies that involve statistical analysis on the focused problem of segregation. All authors used descriptive statistics, which summarizes data from a sample using indexes such as the standard deviation, index of dissimilarity, location quotients etc.

Ostendorf (2009) applied factor analysis to reduce the set of data and define the basic social-ecological dimensions of the city. It helped define the three basic dimensions of residential differentiation.<sup>2</sup> Deurloo & Musterd (2000) used binomial standard deviation for the analysis of the postal coded data-set and measured the amount of variation from the average, showing that all the residential neighbourhoods have heterogeneous housing profiles. Deurloo & Musterd (1997) have used the index of dissimilarity, based on the difference between the distributions of population groups over territories. But it have disadvantages, it measures just two groups at a time and is "aspatial." It does not tell the spatial patterns of segregation, just the relative degree of segregation.

Arbaci (2008) and Leetmaa et al. (2014) both have employed location quotient, that helped to quantify the region's demographic uniqueness and represent it visually on city maps.

It is important to notice the significance of factors as time, context, local policies, immigration conditions etc.

<sup>2</sup> The three basic dimensions of residential differentiation are a socio-economic differentiation (poor versus rich), a socio-demographic one (families with children versus small, households) and socio-cultural differentiations (different religions or groups).

which are not incarnated in the demographic domain and are not accessed by statistic measurements thus cannot show a full picture.

Misuse of statistics can produce subtle, but serious errors in description and interpretation. Subtle, because even experienced professionals make such errors, and serious because they can lead to devastating decision errors. Statistical techniques even correctly applied, can be difficult to interpret for those lacking expertise. Standalone demographic data is a big pool of information that requires sorting out thus statistical analysis helps organize the patterns but can be misleading and dubious. Often it happens that results are unquestionably considered to be true and important factors are disregarded.

### 3.5 Case Studies

The method of case study, also called case research, is a method that studies a phenomenon overtime within its natural setting in one or few sites. Multiple methods of data collection, such as interviews and observations, are employed. Inferences about the phenomenon tend to be rich, detailed and contextualized (Bhattacharjee, 2012).

In this paper, case study is applied on policymaking for social housing in the national Dutch context with Amsterdam as a key actor by van Kempen & Bolt, (2009); van Beckhoven & van Kempen, (2003); Ouwehand & Doff, (2011) and Aalbers, (2004). This theme is as well placed in an international context by using the method of case study in comparing similar situations of social housing in European cities as studied by van Gent (2010).

In the Netherlands, as in most European countries, housing policy has undergone fundamental changes in recent decades. By studying this phenomenon in several case studies it has been possible to draw general conclusions, which can be a strength of case research. Widely held claims can be refuted as done by van Kempen & Bolt (2009) on the basis of empirical research with a case study approach. This way of using empirical research for supporting the case study tend to be a common method, since it is used in a significant amount of papers researched. In the research after redlining,<sup>3</sup> in Amsterdam and Rotterdam the main empirical sources were interviews with key actors and newspaper articles (Aalbers, 2004). However, the quality of inference depends heavily on the integrative powers of the

researcher, findings are sometimes seen as subjective.

One of the errors that often is seen in case studies is the lack of a clear research question which causes an unclear result (Bhattacharjee, 2012). Sources that have been studied for this paper are all examples of material that have a very clear question. Those clear questions caused clear results or understanding of what is lacking in the research to draw general conclusions.

## 4 CONCLUSION

By bringing together all observations on the chosen sources it was possible to critically assess the relevance of those methods for the investigated theme. Choosing specific methods have already proven their relation to the field of social segregation in spatial context. In the aftermath, the authors based their conclusions on the establishment of the common grounds of certain ways of researching and contrasting them in the same time.

The problem with surveys is similar to the problems encountered with statistical analysis of demographic information. Both of the methods have common issues concerning dealing with an extensive amount of quantitative data. Transforming it into articulated and meaningful knowledge seems to be a challenging task that in some cases may not result in a reasonable and veritable conclusion. Thus the main challenge in exerting this kind of research is to be able to interpret objectively the data sets.

On contrary to surveys, an interview has a certain flexibility of questions which allows the interviewer to react to the respondent. In the investigated field the most common form of interview is a semi-structured one which, similarly to survey, has a part of prepared questions but also an open part with possibility to respond on the initial results. In social sciences choice of one of those methods will strongly depend on the purpose of the research. Gaining an understanding of perception of certain phenomena will benefit on interview-based research. On the other hand, surveys will be more useful if the goal is to gather more predictable and comparable answers from participants. In can be concluded that in some cases both methods could be used together in order to achieve better results.

Interview and ethnographic research have a common ground of understanding perceptions, experiences and backgrounds of target group. Yet the latter is based on a far more in-depth observation. In

<sup>3</sup> Redlining is a form of place-based social exclusion. It refers to lending discrimination that bases credit decisions on the location of a property to the exclusion of characteristics of the borrower or property. (Hillier, 2003)

contrary to interviewing, ethnographic research requires participation in daily activities of respondents and so is much more time-consuming. Ethnographic research is much more applicable to cultural behaviours and thus unilateral in comparison to the wide field of investigated problem. Both interviewing and ethnography present mainly subjective results based on analysis of personal opinions and thus if the goal of the research assumes concrete and more quantitative conclusions, they should be used combined with a different method.

Case study as a method for researching social inequality proves to have unique strengths. While comparing several examples of the same phenomena it can be possible to draw not only conclusions but also base a theory on it. On contrary to other methods, it requires a level of experience in the investigated field, meaning that in order to conduct case study research the same phenomenon has to be observed in at least two cases. This kind of research can use all of the above mentioned ways of researching as method to gather information and compare in later matter. This can help derive richer, more contextualized and more authentic interpretation of the phenomenon of interest than most other research methods.

In conclusion all the investigated methods present some level of usefulness in the field of social sciences. They are yet all restrictive in their use and require an attitude of high expertise. All methods should be always filtered with an aspect of objectivity in order to conduct a successful research about social inequality in residential landscape of European cities.

## ACKNOWLEDGEMENTS

Conducting this research would not have been possible without help of insightful lectures provided by teachers of the course 7X811 - Methodology in architectural history and theory. The possibility to learn about researching and different methods to do so influenced strongly our paper.

We would like to thank especially Sukanya Krishnamurthy for guiding us in the process of writing this paper and introducing us to the complicated field of research about society.

## REFERENCES

- Aalbers, M. B. (2004). Place-based social exclusion: redlining in the Netherlands. *Area*, 37(1), 100-109.
- Arbaci, S. (2008). (Re)Viewing Ethnic Residential Segregation in Southern European Cities: Housing and Urban Regimes as Mechanisms of Marginalisation. *Housing Studies*, 589-613.
- van Beckhoven, E., & van Kempen, R. (2003). *Social effects of urban restructuring: a case study in Amsterdam and Utrecht, the Netherlands*. Utrecht: University of Utrecht.
- Berg, B. L. (2000). *Qualitative Research Methods for the Social Sciences*. Needham Heights: Allyn & Bacon.
- Davis, M. (2006). *Planet of the Slums*. London: Verso.
- Deurloo, R., & Musterd, S. (1997, 04). Ethnic segregation and the role of Public housing in Amsterdam. *Tijdschrift voor Economische en Sociale Geografie*, pp. 158-168.
- Deurloo, R., & Musterd, S. (2000, May). Residential Profiles of Surinamese and Moroccans in Amsterdam. *Urban Studies*, 38, pp. 467-485.
- Dhalmann, H. (2013). Explaining Ethnic Residential Preferences: The Case of Somalis and Russians in the Helsinki Metropolitan Area. *Housing Studies*, 389-408.
- Ellemers, N., & Box, A. (1998). *Social Identity, Relative Deprivation, and Coping With the Threat of Position Loss: A Field Study Among Native Shopkeepers in Amsterdam*. Amsterdam: V.H. Winston & Son.
- Engbersen, G., van San, M., & Leerkes, A. (2006). *A room with a view: Irregular immigrants in the legal capital of the world*.
- van Gent, W. C. (2010, March). Housing Context and Social Transformation Strategies in Neighbourhood Regeneration in Western European Cities. *International Journal of Housing Policy*, Vol. 10(No. 1), pp. 63-87.
- Groat, L., & Wang, D. (2002). *Architectural Research Methods*. Canada: John Wiley & Sons.
- Gruner, S. (2010). 'The Others Don't Want ...'. Small-Scale Segregation: Hegemonic Public Discourses and Racial Boundaries in German Neighbourhoods. *Journal of Ethnic and Migration Studies*, Vol. 36(No. 2), pp. 275-292. doi:10.1080/13691830903387402
- Hermans, P. (2010). *Applying Ogbu's theory of minority academic achievement to the situation of Moroccans in the low countries*. Groningen: Department of Pedagogy and Gender Studies.
- de Jong, M., Kamsteeg, F., & Ybema, S. (2013). Ethnographic strategies for making the familiar strange: Struggling with 'distance' and 'immersion' among Moroccan-Dutch students. *Journal of Business Anthropology*, 2(2).
- van Kempen, R., & Bolt, G. (2009). *Social cohesion, social mix, and urban policies in the Netherlands*. Springerlink. doi:10.1007/s10901-009-9161-1
- van Laere, I. R., de Wit, M. A., & Klazinga, N. S. (2009). Pathways into homelessness: recently homeless adults problems and service use before and after becoming homeless in Amsterdam. *BMC Public Health*, Vol. 9(No. 3). doi:10.1186/1471-2458-9-3
- Lawton, P. (2013). Understanding Urban Practitioners' Perspectives on Social-Mix Policies in Amsterdam: The Importance of Design and Social Space. *Journal of Urban Design*, Vol. 18(No. 1), pp. 98-118. doi:10.1080/13574809.2012.739546
- Leetmaa, K., Tammaru, T., & Hess, D. B. (2014). Preferences Toward Neighbor Ethnicity and Affluence: Evidence from an Inherited Dual Ethnic Context in Post-Soviet Tartu, Estonia. *Annals of the Association of American Geographers*. doi:10.1080/00045608.2014.962973
- Logan, J. R. (2006). Variations in Immigrant Incorporation in the Neighborhoods of Amsterdam. *International Journal of*

- Urban and Regional Research*, 30(3), pp. 485-509. doi:10.1111/j.1468-2427.2006.00677.x
- Norris, M. (2006). Developing, designing and managing mixed tenure estates: implementing planning gain legislation in the Republic of Ireland. *European Planning Studies*, 14(2), pp. 199-218. doi:10.1080/09654310500418085
- Ostendorf, W. (2009). *The social map of Amsterdam in transition; Multilayered cities and urban systems*. Amsterdam: Amsterdam Institute for Social Science Research.
- Ouwehand, A., & Doff, W. (2011). *What is the use of lifestyle research in housing? A case study from the Netherlands*. Delft: OTB Research institute for the Built Environment.
- Pels, T., & de Haan, M. (2007). Socialization practices of Moroccan families after migration: a reconstruction in an 'acculturative arena'. *Young*, 15(71).
- Silverstein, P. A. (2005). *Immigrant Racialization and the New Savage Slot: Race, Migration, and Immigration in the New Europe*. Portland: Department of Anthropology.
- Søholt, S. (2014). Pathways to Integration: Cross-cultural Adaptations to the Housing Market in Oslo. *Journal of Ethnic and Migration Studies*, 40(10), pp. 1637-1656. doi:10.1080/1369183X.2013.859069
- Tillie, J. (2007). Social capital of organisations and their members: explaining the political integration of immigrants in Amsterdam. *Journal of Ethnic and Migration Studies*, 30(3), pp. 529-541. doi:10.1080/13691830410001682070
- Yacobucci, P. (2012). *Introducing the Literature Grid: Helping Undergraduates Consistently Produce Quality Literature Reviews*. New York: SUNY Buffalo State College.
- Zorlu, A. (2012). Occupational Adjustment of Immigrants in The Netherlands,. *Int. Migration & Integration*, 14, pp. 711-731. doi:10.1007/s12134-012-0264-2

# Gentrification and Residential Mobility.

A. Haghparast, S. Sanchez, E. Sfakiotaki, N. Stojmanovska, P. Yavari  
*Architecture, Building and Planning, Eindhoven, Netherlands*

**ABSTRACT:** The issue of gentrification and the effects on residents' mobility studied by different research methods will be discussed in this paper. Gentrification is a global phenomenon, taking place when re-development plans for degraded areas are on force. The effects are multidimensional and affect social, economic and urban aspects of the neighborhood (Soytemel, 2014). Gentrification has as result also displacement and mobility of residents, sometimes related also to their social or economic status (Posthumus, 2014). The state-of-the-art regarding mobility of new (gentrifiers), old (remaining) and moving (out-movers) residents in gentrified neighborhoods, will be investigated in this research paper, through the contribution of different methodological approaches used by researchers, so far.

In the following paper five methods, which are used to investigate the term 'gentrification' or 'urban renewal', in correlation to the effects on population mobility. The aim is to assess through comparative analysis, the differences amongst the approaches of these methods to a common theme and reveal the strengths and gaps of each of them. Comparative case study, data analysis, interviews, observations and surveys are the five explored methods, which will be analyzed through literature grid.

As a result, the contribution of social oriented methods such as interview and survey is significant; however the results are varying according to the target groups (gentrifiers, out-movers and remaining residents); as each group represents a different perspective on the matter. Observation is hardly found as an exclusive method used in a research and aims in providing an in-depth understanding when combining with other methods, like interviews. Data analysis is used as the most objective method and gives basically an overview on development indicators, ownership and demographic status of the gentrified neighborhood. Last but not least, study case as a method is used in order to give an overview of a certain neighborhood or to reveal comparisons among others.

**KEYWORDS:** *Gentrification, Urban renewal, Displacement, Methodological approaches.*

## 1 INTRODUCTION

In the following paper, the term 'gentrification' or 'urban renewal', in correlation to the effects on population mobility will be discussed. Often it is stated, that when people of different socio-economic background have to co-exist, the cohesion of the neighborhood is fragmented (Colic-Peisker, 2014). Is-

ues of spatial distribution are raising and also the sentiment of belonging is becoming ambivalent (Soytemel, 2014).

Different aspects on the selected topic are unveiled through the literature review: the relationship of remaining residents with the gentrified neighborhood (Brade 2009), the terms of displacement for the out-movers (Posthumus 2014, Brade 2009), the trends regarding the new residents (Boterman 2014, Atkinson 2010). The papers selected, are treating the above issues by using different methodological ap-

proaches. Within this paper, the outcomes of these researches will be compared in order to discuss strengths and weaknesses of each method, when approaching the issue of gentrification and residents' mobility.

## 2 METHODOLOGY

This study is done with the aim to assess the differences amongst the approaches of various methods to a common theme to reveal the strengths and gaps of each method while providing a guideline to select the proper research method for a specific study. This paper studies the term "Gentrification" investigating selected researches carried out on the subject on the basis of different research methods and performs a comparative study on the outcomes of these works. The authors have searched for articles with "Gentrification" as their research theme. This search is done online via search engines (Google scholar and Scopus, Focus TU/e, etc.) on specified terms (Gentrification AND Economy AND Social cohesion, etc.), and also offline in the library. Going through the articles, five most applied research methods are selected: Case study, Data analysis, Interview, Observation and Survey. For each selected method each of the authors has dived into five selected articles and summarized them into five literature grids. The Title, Author, Publication year, Location, Research theme, Research method, Key findings, Results, Gaps, and Key words of each article are put together in the literature grids. A brief summary of the pros and cons of each research method is provided. These five summaries are put together and their comparison has led to a conclusion of what are the potentials of different methods to answer the research question.

## 3 RESULTS

### 3.1 Case Study

The case study method is used commonly for studying gentrification and social cohesion. This method has been used in different scales; for instance, neighborhood scale (Butler, 2001), city scale (Teernstra, 2013) or country scale (Lees, 2008). In these five articles researchers pick their case studies and use tools like interviews (Burns, 2011, and Atkinson, 2000) or databases (Teernstra, 2013) to gather information and reveal relevance and comparisons between the case studies. Afterward, they con-

clude with conducting an overview of the information they got through using these methods. In brief, researchers using case study, benefit from tools like interview, surveys, databases, etc., to gain information.

Among the five articles, researchers mostly use case studies within the same context, like neighborhoods of a specific city (Butler, 2001, Atkinson, 2000, Burns, 2011) or cities of a specific country (Teernstra, 2013) to ease the way of data gathering and analyzing. However, case studies can also be in different countries (Lees, 2008). Interviews can be done with the gentrifiers and/or displacers (Butler, 2001) to demonstrate their point of view about this issue. However, some articles just focus on one target group of people for doing interview, like 'elderlies' (Burns, 2011). Researchers using interview should be aware of the process and tools they want to use for gathering data, because in most cases finding displacers is hard.

In the articles, gentrification and social cohesion as a phenomenon are indicated in a way that the boundaries between phenomenon and context is not clearly evident, and this can show that case study as a method can investigate this issue with a broader perspective.

The ways for composing the reports varies between each article, some have each case as a separate chapter (Burns, 2011) and some reports, in each chapter, compare a same factor in every case study (Teernstra, 2013). Moreover, there are some articles that composing the report as a story and explain the result chronologically (Atkinson, 2000).

Probably the most important positive aspect of case-study method, especially in this theme that is social related, is the point that it reveals the gentrifiers and displacers viewpoint about the topic.

Although, case study is widely used among researchers, still there are some doubts about the fact that if on can offer a ground for establishing a reliable and general finding based on study of a small number of cases.

### 3.2 Data analysis

Data analysis, as a research method, assists in testing a hypothesis upon which the whole study has been built. With the help of data analysis procedures, one can convert data into useful information and knowledge.

Choosing the proper data set is extremely important especially when it is supposed to be a statistical sample or the results are supposed to hold in a more general context. Tieskens (2013) treats this

step very carefully in his paper. Once carefully chosen, the data can reveal relations between different variables only by simple observation or plotting graphs that show how a certain variable depends on other variables. Afterwards one can discuss the role of different factors in the observed relations. In his paper, Atkinson (2000) observes an inverse relationship between the gentrification and displacee variables by the use of longitudinal census data. Graphs are extensively used to see income development of households after gentrification process in the paper of Hochstenbach (2014).

One way to analyze data is to feed them into models proposed for a phenomenon. Models are very useful when it comes to comparing the effect of different variables individually. MCKinnish (2008) uses a logit model in his paper to compare the effect of family income, race/ethnicity, and education level in demographic flow into gentrifying and non-gentrifying neighborhoods.

Tracking social changes over time and urban space (e.g. Gentrification dynamics) has been made possible by GIS analysis of census data. Boterman (2014) makes use of these techniques as well as regression analysis. In general, exploring relation between different (social, economic, urban) variables when data is available is facilitated by regression analysis.

### 3.3 Interview

Interviews are a method used in many of the research regarding gentrification and residents mobility.

This topic is controversial and hence the opinion of the inhabitants provides to the researches a general overview in order to examine how gentrification could affect the people and its mobility and at the same time enhance the existing society. Five papers were examined in which the collected data used was quantitative or qualitative interviews as the methodology followed. The interviews were in-depth semi structure with open-ended questions to residents and local key informants.

The specific topics considered within this methodology are related to the social aspect of gentrification. A case in which social-mix is studied in an institutional setting provides an insight on how the interaction within a school creates social-mix however it also creates differences and not the interaction regarded by policies (Nast & Blokland, 2013). Several other studies try to identify the impact of the inhabitants that have passed through the process of gentrification, either by examine local residents both arri-

vals and long-residents (Doucet, 2009) or residents that decided to stay after gentrification (Pearsall, 2012).

Other studies aim to understand the social mix focusing on the middle-class (Butler, 2003) or by studying different areas in which the same effect has occurred during several years, making an overview overtime (Jackson & Butler, 2014). The main reason for the mentioned methodology was to get an insight to the people perspective regarding gentrification in different case studies. In some of the cases, since the sample will change over time, old interviews are analyzed and compare with more recent ones in order to determine how an opinion could evolve affect different generations (Jackson & Butler, 2014).

The interviews provided a personal opinion to the topic in which several conclusions can be drawn considering the people that have lived this process. Hence provide a view on the social aspect of the situation. However, it also faces some constraints when the sample needs to be determined. In order to validate the information extracted from the interviews the sample should be significant in relation with the total population. Moreover, another limitation is the willingness of the people, some are not willing to cooperate or simple time is a constraint to do so (Butler, 2003). Finally, this methodology has subjective results and so the interpretation of the information given could mislead to a specific conclusion depending on the researcher. At the same time, the people interviewed will lead to a trend, in the case of our specific topic the answers differ depending if the people were new tenants or were moved to a new area from the gentrifies.

### 3.4 Observation

The method of observation, considering the theme of gentrification, is used when the author argues about way of using a certain place that has been gentrified, or for analyzing people's behavior in gentrified communities. After broad search of scientific papers, five were selected and examined in more detail. The search takes some time because when it comes to the theme of gentrification, not many studies were conducted using only this method. Most of the research papers are using combining methods, like observation and interview, in order to give in-depth analysis of how the process of gentrification affects the physical world of a neighborhood and how the social interaction between residence developed.

In three of the examined papers observation is conducted while the authors lived in the area and were able to observe the gentrified place while mov-

ing through the neighborhood on regular basis. During these observations, informal talks with residence were used additionally, in order to understand certain behavior. During the research, producing photography and maps from the surrounding serves as a helping tool. Patch in “The embodied landscape of gentrification” is using photography as a conclusion argument trying to capture the potential and the new possibilities in the gentrified industrial neighborhood in New York (Figure 1).

Karsten (2012) is using a photography as a tool to validate the successfulness of family gentrification in the neighborhood in Amsterdam. Observation is the only method that can show the way of using a place and therefore it is used in providing an image of how community is functioning.



Figure 1: The new Brooklyn “industries”, Source: Jason Patch (2006). “Visual Studies: The Embedded Landscape of Gentrification”

August (2014) is using specific way of observing residence behavior on which this paper is based. This research is studying the people’s behavior in the specially organized meetings within the community in order to conduct observation and to allocate problems that occur in the gentrified community. This type of observation gives results in quick time and shows to be very useful when verifying new gentrified communities. In contrast, the observation of the research paper “Visual Studies: The Embedded Landscape of Gentrification (2006), takes multi-year study. Main aim on this research paper is to give visual image of the process of gentrified landscape. This type of visual research, mostly documented with photography and graphics is trying to explain the worlds that gentrifiers create in the

communities and the amount of connection or disconnection with the previous setting.

Observation, as type of method for studying gentrification, shows to be not very popular tool among researchers. This appearance can be explained with the length of the process of gentrification and with the in-field work that should be done while using it. However, the final results shows to be very useful when gentrification is included in developing a community, because it gives a clear image of how community functions after gentrification.

### 3.5 Survey

As, unveiled by the selected articles, three out of five, use ‘survey’ as a method, in combination with other methodical tools (mixed strategies). Survey seems to be used in the researches under three aims: as a tool in order to add value and interpret better available statistic data (Brade 2009, Bromley 2007, Freeman 2005), as a tool in order to add information and acquire a better insight on social issues not described in available databases (Kearns 2013), or as an exclusive tool, with the aim to reveal residents’ perspective on the issue of gentrification and mobility. (Posthumus 2014). Survey, in the selected papers, treated residents’ aspects under three perspectives: the point of view of gentrifiers, of out-movers and of remaining residents.

When using the method of survey, the difficulty lies in various points: Firstly, the available statistical data used in all cases, concern a complete demographic list of characteristics for one or more neighborhoods. The researchers on the other hand, as expected, cannot conduct surveys in such an extent, as it is time consuming and require a great amount of resources. Therefore, setting the criteria for choosing and verifying a representative sample is crucial in order the results to be trustworthy. Justification on setting criteria on the selected sample happens in a persuasive way in some papers (Bromley 2007, Freeman 2005, Posthumus 2014), and in a less successful way in others (Brade 2009, Kearns 2013). Another negative issue regarding the method of survey is the link between generalizing the results of the research when examining a limited sample. Limitations and assumptions have to be included in the results in order to describe the framework under which the results are valid. This happens in almost all the selected cases. (Bromley 2007, Freeman 2005, Brade 2009, Kearns 2013)

A limitation of the research is that is highly based in the willingness of people to participate, as it is basically conducted through post or on-line question-

naires. The researcher, therefore, cannot exactly predict the size of the sample that he/she will use. This may lead in collecting significantly less data than originally planned, which makes necessary to further organize a fieldwork in order to get sufficient data (Brade 2009). In addition, the researcher, although could have carefully selected a representative sample for the survey, cannot always reassure the diversity of the sample, as people's response can be discriminating based on motivation, educational level, access to technology e.c.t. (Freeman 2005).

Despite the above gaps and limitations of the method, it definitely presents strengths especially useful in the particular topic of gentrification, which has a high social profile. Survey has been along with interviews, a method that can add the social perspective in research. As stated in all papers, the reason for using survey, is that is a sensitive tool that can depict residents' preferences and satisfaction, adding in that way insight on aspects that are not reflected in available databases.

#### 4 CONCLUSION

This paper aims to analyze five different methods regarding the topic of gentrification and residents' mobility. It is a sensitive topic, since it is focused on social aspects as far as the gentrified communities are concerned.. Therefore, the methods to consider could affect the results given, concluding to a positive or negative overview in the researched area.

The first method analyzed has been the case study. Since gentrification is related to an area, most of the research is done within a specific study case. It gives an overview of a certain neighborhood or reveals some comparison between others. Secondly, a data analysis is widely used when using statistical data and it can reveal relations between different variables that are not so possible with other methods. Moreover, when using Interviews as a method, the conclusions could be positive if the gentrifiers are concerned as the examined sample, and not so optimistic when out-movers and remaining residents are interviewed. However, the positive effect of this method in comparison to the others is that it reveals an insight of the people's perspective in different case studies. In some of the cases, the answers were not as expected. For example, in cases of controlled gentrification (urban renewal) when there was plan of integration for out-movers to new housing, their answers regarding their mobility status was satisfactory. Observation is hardly found as an only method used in a research and it aims to provide an in-depth

understanding when combining with other methods like interviews. It could be more time consuming but identify the image of a place that could be combining with the opinion of the inhabitants. Finally, the last method analyzed has similar aims as the interviews but it appears in relation with statistical data. The combination of this method provides the social aspects that are not so visible in the numbers. Most of the time, it could present the same problems as in interviews regarding the sample and the willingness of the people.

An overview of the different methods is presented in Comparative analysis table (Figure 2) in order to compare all methods studies during this paper. We can derived from it that the case study is used as a mix-method as the observation. The data analysis is used with different variables needed to be analysis and it gives the most objective result among the others. The more social oriented are the observation, interview and survey, however the results are also subjective which could be interpreted differently from one researcher to another. The constraints from the objective methods differ from each other, on one hand the case study gives conclusions related to a specific area and the data analysis could face accessibility issues, since some of the information could be private. The interview and survey depended mainly on the sample size, willingness of the people and are of the most time consuming methods in terms of data gathering, such as the interview and analysis, using both. Finally, the observation is the most difficult to assess but it is the only one that can show how the way of using a gentrified place and gives a solid proof of whether it was successful or not.

Method	Why? Purpose	Results	Strengths	Constraints
Case study	Analysis of a specific place	Objective and subjective	Mix-method	Conclusions useful for the same case study only
Data Analysis	Relation among different variables	Objective	Large amount of information Different variables	Sample size Accessibility
Interview	Inhabitants insight	Subjective	Social oriented Personal opinion	Sample size Willingness of the people

				Time consuming (gathering and analysis)
Observation	Society insight (development and image)	Subjective	Mix-method Social oriented	Length of the process of gentrification Difficult to assess
Survey	Inhabitants impact	Subjective	Mix-method Social-oriented	Sample size Willingness of the people Time consuming (analysis)

Figure 2: Comparative analysis table.

The main research question of this paper was “How the relation between Gentrification and residents’ mobility is studied by different research methods?” When analyzing the results driven by all of the papers studies we could not argue that one method is better than the other. However, from the topic studied a more insight into the people’s perspective was known by using interviews, survey and observation. The results were not always as expected since some of the old residents were happy with gentrification but generally there were negative reactions with the answers from people that needed to move to a different area. When looking into the numbers, which are mainly based on data analysis the outcome of the gentrified area was optimistic since the area safety and economics of the area increase. A method that should be used more often is observation since there are specific aspects that could not be seen from numbers of the opinion of the people. We can conclude that combining different methods could lead to better results and have a more general overview of the research. Finally, it is important to know the expected outcome to select the most suitable method for a research. Each method could lead towards certain perspective while other could differ from the main research questions.

## REFERENCES

- Atkinson, R. (2000). Measuring gentrification and displacement in greater London. *Urban Studies*, 37(1), 149–165. doi:10.1080/0042098002339
- Atkinson, R. (2000). The hidden costs of gentrification: Displacement in Central London. *Journal of Housing and the Built Environment*, 15(4), 307–326. doi:10.1023/A:1010128901782
- August, Martine. 2014. “Negotiating Social Mix in Toronto’s First Public Housing Redevelopment: Power, Space and Social Control in Don Mount Court.” *International Journal of Urban and Regional Research*, 38(4):1160–80. Retrieved December 12, 2014 (<http://onlinelibrary.wiley.com/doi/10.1111/1468-2427.12127/abstract>).
- Boterman, W. R., & van Gent, W. P. C. (2014). Housing Liberalisation and Gentrification: The Social Effects of Tenure Conversions in Amsterdam. *Tijdschrift Voor Economische En Sociale Geografie*, 105(2), 140–160. doi:10.1111/tesg.12050
- Brade, I., Herfert, G., & Wiest, K. (2009). Recent trends and future prospects of sociospatial differentiation in urban regions of Central and Eastern Europe: A lull before the storm? *Cities*, 26(5), 233–244. doi:10.1016/j.cities.2009.05.001
- Bromley, R. D. F., Tallon, A. R., & Roberts, A. J. (2007). New populations in the British city centre: Evidence of social change from the census and household surveys. *Geoforum*, 38(1), 138–154. doi:10.1016/j.geoforum.2006.07.008
- Burns, V. F., Lavoie, J.-P., & Rose, D. (2012). Revisiting the role of neighbourhood change in social exclusion and inclusion of older people. *Journal of Aging Research*, 2012. doi:10.1155/2012/148287
- Butler, T., & Robson, G. (2001). Social Capital, Gentrification and Neighbourhood Change in London: A Comparison of Three South London Neighbourhoods. *Urban Studies*, 38(12), 2145–2162. doi:10.1080/00420980120087090
- Butler, T. (2003). Living in the Bubble: Gentrification and its “Others” in North London. *Urban Studies*, 40(12), 2469–2486. doi:10.1080/0042098032000136165
- Colic-Peisker, V., & Robertson, S. (2014). *Social change and community cohesion: an ethnographic study of two Melbourne suburbs*.
- DeSena, J. N. (2006). “What’s a Mother To Do?” Gentrification, School Selection, and the Consequences for Community Cohesion. *American Behavioral Scientist*, 50(2), 241–257. doi:10.1177/0002764206290639
- Doucet, B. (2010). *Living through gentrification: Subjective experiences of local, nongentrifying residents in Leith, Edinburgh*.
- Freeman, L. (2005). Displacement or succession? Residential mobility in gentrifying neighborhoods. *Urban Affairs Review*, 40(4), 463–491. doi:10.1177/1078087404273341
- Hochstenbach, C., Musterd, S., & Teernstra, A. (2014). *Gentrification in amsterdam: Assessing the importance of context*.
- Jackson, E., & Butler, T. (2014). Revisiting “social tectonics”: The middle classes and social mix in gentrifying neighbourhoods. *Urban Studies*, 0042098014547370. doi:10.1177/0042098014547370
- Jason Patch (2006). “Visual Studies: The Embedded Landscape of Gentrification”. 19:2, 169–187, DOI:10.1080/1472586042000301674

- Karsten, Lia. 2014. "From Yuppies to Yupps: Family Gentrifiers Consuming Spaces and Re-Inventing Cities." *Tijdschrift voor economische en sociale geografie* 105(2):175–88. Retrieved December 12, 2014 (<http://onlinelibrary.wiley.com/doi/10.1111/tesg.12055/abstract>).
- Kearns, A., & Mason, P. (2013). Defining and Measuring Displacement: Is Relocation from Restructured Neighbourhoods Always Unwelcome and Disruptive? *Housing Studies*, 28(2), 177–204. doi:10.1080/02673037.2013.767885
- Lees, L. (2008). Gentrification and Social Mixing: Towards an Inclusive Urban Renaissance? *Urban Studies*, 45(12), 2449–2470. doi:10.1177/0042098008097099
- Lou, J. J. (2010). Chinatown transformed: Ideology, power, and resources in narrative place-making. *Discourse Studies*, 12(5), 625–647. doi:10.1177/1461445610371055
- McKinnish, T., Walsh, R., & White, K. (2008). Who Gentrifies Low-Income Neighborhoods? (Working Paper No. 14036). *National Bureau of Economic Research*. Retrieved from <http://www.nber.org/papers/w14036>
- Nast, J., & Blokland, T. (2014). *Social Mix Revisited: Neighbourhood Institutions as Setting for Boundary Work and Social Capital*. *Sociology*, 48(3), 482–499. doi:10.1177/0038038513500108
- Pearsall, H. (2012). Moving out or moving in? Resilience to environmental gentrification in New York City. *Local Environment*, 17(9), 1013–1026. doi:10.1080/13549839.2012.714762
- Posthumus, H., Bolt, G., & Van Kempen, R. (2014). Victims or Victors? The Effects of Forced Relocations on Housing Satisfaction in Dutch Cities. *Journal of Urban Affairs*, 36(1), 13–32. doi:10.1111/juaf.12011
- Soytemel, E. (2014). "Belonging" in the gentrified Golden Horn/Halic neighbourhoods of Istanbul.
- Teernstra, A. (2014). Neighbourhood Change, Mobility and Incumbent Processes: Exploring Income Developments of In-migrants, Out-migrants and Non-migrants of Neighbourhoods. *Urban Studies*, 51(5), 978–999. doi:10.1177/0042098013494422
- Tieskens, K. F., & Musterd, S. (2013). Displacement and urban restructuring in Amsterdam; following relocatees after demolition of social housing. *Urban Research and Practice*, 6(2), 194–210. doi:10.1080/17535069.2013.808432

## Social interaction in public spaces.

G. Harmsen, L. Jansen, N. Engelbert, E. Weusten, T. Steijns.

*Architecture, Building and Planning, Eindhoven, Netherlands*

**ABSTRACT:** The urban social space consist of public spaces. Those public places are spread throughout the city, in the city centre or in different neighbourhoods. These places are used by a lot of people with different cultures, mind-sets, ages etc. The city centre consists mostly out of anonymous crowds, full of individuals. While in the neighbourhoods, the difference between the inhabitants is much lower. This paper will describe how research can be done for this specific subject, the subject of the social interaction in the public spaces.

The aim of this research paper is to analyse the differences in research methods. Developing a better understanding and recognizing the different kind of research methods within this course. The five different research methods are: observation, interviews, survey, ethnography and case studies. Every method has five different research papers. The use of a literature grid during the research is to help getting a better understanding about the research methods and the related papers. When the literature grid is fully completed, comparisons can be made about the differences and similarities. It gives a good overview and more detailed information of all 25 research papers.

The chosen researched papers used qualitative or quantitative methods. The difference between them is that the qualitative approach is more focused on gathering information about the general topic. The quantitative methods are more focused on profounder information. Examples of research methods with a qualitative approach are: group discussions, depth interviews, eye-tracking, location researchers etc. The quantitative research methods are: face-to-face survey, interactive voice response, online research etc. For this research paper it is important to investigate how the chosen methods are used in the different research papers. How the social interactions takes place on different public spaces like a square, parks, streets etc.

**KEYWORDS:** *Social interactions, Public spaces, Neighbourhoods, Urban, Segregation*

### 1 INTRODUCTION

The research presented below is being carried out thanks to the course “Research in urbanism and architecture” followed in the master Architecture, Building and Planning at the Technical University of Eindhoven. The research put into practice the aims of analysing the differences in research methodologies on the subject of social interaction in public spaces. Architecture has a lot of influence on social interaction between people all around the world. Designing neighbourhoods is becoming more important because of the potentials for creating social interaction. Not only buildings are meeting places where people interact and talk to each other. Open public places are also very important in a neighbourhood

for creating social interaction. Think of public squares, park or even a small playground that connects a few houses with each other. The analysis consist of five different chosen research methods.

Public spaces have become more important through the years to generate social interaction. The purpose of researching this subject is to see how public spaces work and how public spaces can improve the social interaction. A research can help the way of designing neighbourhoods and public spaces. Within this subject different kind of articles have been chosen that use different research methods to get a better understanding of the importance of public spaces. Analysing an article is important to see how different methods can give a same or a different answer to a chosen subject. The general and principal aim of the proposed research is to define, based on twenty-five different articles, the similarities and

the differences between the five chosen research methods and to understand the approach and the way of appliance of each one of the research methods. The different research methods can be approached in a qualitative way or a quantitative way. In which a qualitative approach is more detailed, consist of a small group of participants, and focusses on profounder information. A quantitative approach is more focusses on general information about the general topic. It usually uses a large group of participants that generate information that is explained in a large amount of numerical data. These methods give a systematic and theoretical analysis of the potentials of public spaces for creating social interaction. A methodology does not set out to provide solutions or answers for this chosen study subject. A methodology offers a theoretical underpinning of which methods or a set of methods can be applied to a specific study subject. A research method gives a specific result to a study subject but does not directly provide a solution or answer. There are five different research methods chosen that each has its own way of calculating a specific result for the chosen subject. Therefore, the original hypothesis of this research consist not only on a given main question that focusses on the general topic of the articles, but also on sharing and gathering experience of the different research methods and there way of approaching the chosen subject. The main question for this research paper is: What are the potentials of public spaces for creating social interaction?

Within this proposed research paper is explained and described the methodology that are chosen for researching the twenty-five articles. Every one of the students has chosen five articles that matches the chosen subject and the chosen research method. Every article is read carefully to investigate the use of the research method within the article. Each article is provided with a result that consist of the founding's that derive from the research method that is applied. Each of the results from the different research methods will be summarized in the results. These results will be analysed for similarities and differences in the final conclusion of this research paper.

## 2 METHODOLOGY

The methodology used for this research, to analyze the literature, is with a literature review grid. Within this research five different research methods are chosen. Every method has five different kinds of literature. The literature review grid is a way of organ-

izing the different literature. It gives an overview of the different kinds of literature, the main arguments or the findings. The grid is presented in a table form, with in the vertical columns the information of the authors occupying, and the issues of the researcher on the horizontal axis. The literature review grid is relevant for this paper because of the way it is organized. The sources that are used, and the main findings can easily be found, instead of searching through all the documents. With this overview is it easier to analyze the similarities and differences between the literatures.

The literature grid is divided into five different columns. The first vertical column shows the names of the auteurs of the analyzed literature. The second column shows the chosen literature. There are a lot of different literature like, online articles, essays, chapters of books or magazines. The third column, in the middle is the most important column of this literature grid. This column includes the main findings, which all should be about the social interaction in different public spaces in the city. A city has a lot of different individuals with different cultures, gender, incomes, mind-sets etc. Some of the literature is more focused on the social space in terms of interaction with people in an urban park. Other literature is more focused on the social interaction in an urban park. But all the literature should have a main finding or argument on the interaction in the social spaces in the city. The fourth column of the grid is the part that shows the different methods that are used in the literature. Each of the chosen methods is in this column more specified and described how this method is used in the investigation of the author. Every research method has different types of using the applied method. For example in the interview method there is a depth interview, a walk along and a walk tour. The last column of the grid shows different keywords and notes. The keywords are the most important aspects in the literature that has been read. By using the keywords it is possible to find a specific subject easier in the correct literature. Because of the common subject, the keywords are sometimes repeated in different literature. The most used keywords are, social interaction and public space.

### 3 RESULTS

#### 3.1 Interview

In the sources chosen for the interview method it is clear that there are different approaches of how to use the interview-method.

So there is depth interview which is used in the study of fear in a specific environment. For this depth interview different women in Edinburg and Helsinki where participants and compared the differences and similarities between the feelings of fear of those women. The depth interview came with the result that the environment is of a great influence on the experience on feelings of fear, but the feelings of fear also had a great influence on the experience of the environment.

A different approach of the interview-method is the go –along interview. The go-along interview is an interview in which the interviewer researches the way people experience their world and how these experiences influence their health and well-being. One of the advantages of the go-along interview is that it has the strengths of the fields observation as well as the sit down interview, but it also has limitations.

Another approach in the interview-method is the walking tour. The walking tour consist out of a walk by meaningful or not meaningful places and measure the comfort level of the participant. One of the results showed that people were more comfortable at the post office than being in the park. The results also showed that there was a difference between the feelings of men and of a women.

To research the social interaction in a park, people with different ethnic backgrounds were interviewed on their use of urban parks. The interviews were qualitative. One of the results shows that ethnic groups all have the need to use green spaces for relaxation. Another result of the study suggests that urban parks can be seen as inclusive spaces, where people of different ethnicities can spend their free time.

In one of the studies there is a big screen used to research the social interaction between people. People were afterwards interviewed about the use of the big screen and their experiences of interaction with others while using the big screen. It seemed that users of the screen attracted other users. Also the size of the screen in this study made it possible to interact with other users in different ways.

#### 3.2 Survey

The survey research method used in the five different sources is focussed on quantitative survey questionnaires. A research of the survey method within these five sources has been done to understand the contribution of this method to the answer of how urban parks can lead to social interaction. All the questionnaires used in these sources were quantitative which means that it involves a larger part of the population area in which this research found place. The participant group can be a large part of the population of a selected city of research, but the participant group can also be a selection of people from different cities or places. When using multiple cities in a research, the research area can be extended to a national level. In order not to lose the focus group of your research a small selection of people is selected in each city that fits within the focus group. “To improve the comparability of immigrants and native Dutch people as regards socio-economic background and living-environment, we focused on one residential district in each city” (Peters, K. Elands, B. Buijs, A. 2010).

Questionnaires are able to gather big data that is arranged by age, gender, income group and sometimes race. This big data that is arranged by these several aspects does not only show how many people visit urban parks, but also which sort of people visited these urbane parks. The questions of a questionnaire can also determine the amount of data that is needed to do research. A questionnaire can exist of three open questions, but it can also be a large amount of multiple-choice questions. Each research has its own aspects for detailing their research. A research by questionnaires can set their focus in particular on social attributes of the participants or it can focus on green space properties and the quality of the parks. In some of the articles the social attributes are very important and very detailed. While in other articles the focus is placed green space properties like the facilities and the green quality of the park. “The design of the spatial configuration could serves as platform for social bonding and interaction. In order to comprehend design qualities that encourages social mingling it is recommended to measure the green space properties (i.e. green quality, green setting, accessibility, dynamic feature) and social attributes (i.e. personal information, social division and social preference) of the green space through documented responses” (Rasidi, M.H. Jamirsah, N. Said, I. 2012).

The results to the question of the importance of social interaction in urban public spaces is in every source in general the same. There is a significant contribution of urban parks for creating social interaction. The specific focus of each result is different for each research. Some researches only focus on income levels and some on ethnic background, while other researches compare more aspects at once. Still the methodology of this survey method is in all the sources the same.

### 3.3 *Observation*

In the different literature that is chosen for the observation method, there is an import line. All the research papers concern the social interaction between people on a public space. When comparing the different literature with each other, it creates comparable results, such as the formation of mixed gender groups. There used to be a lot of same gender groups, but it is now changed into mixed gender groups. This results in a different communication about different subjects, ideas, concepts, etc. This change is also connected with a higher percentage of women in the public spaces. This percentage is emerged because of the participation in the labour force. Women make more money and therefore have more to spend. Shopping is a “feminine” activity and therefore there is a greater presence of women in a public space by retail opportunities (Hampton, Albanesius, 2014). But that does not mean that there is only group activity in the public spaces. During the years the percentage of singletons is increased. This occurs mainly in a transition point between destinations. Those destinations have a lack in diversity in leisure and commercial activity. There is also a change in people who are present during the day or at night. During the day especially business people, elderly and parents with little children are present at the public spaces. When the evening approaches there is a change in age, the elderly people make place for the youngsters. Because of the change from day to night, people became afraid for the public spaces. Especially the people who aren’t familiar with a specific public space are afraid to enter it in the dark. Therefore there is more interaction in the afternoon than in the evenings. By interaction, social control is involved. When there is social control, it gives a feeling of safety for the visitors of the specific public space. Also in the neighbourhoods there is social trust between the residents and therefore a sense of control.

### 3.4 *Ethnography*

The research done on ethnography, with regard to the used methods, is comparable in the five different sources. In the different sources are the methods observation and interviews used to research ethnography. It is all about social interaction between people.

The observation happened in different forms and were registered differently. The different forms of observation used in the sources are for example the on-side observation and the walk-bys. The way of registration is also different, the researcher can register everything, but the researcher also used camera’s to make pictures and videos to register information. At first the research starts with getting information about the location, sort of buildings, square meters, residents etc. Then the context of observation included number of users, gender, age, race, poverty movement flow, location of activity and type of activity of the people who are using the public space or the influence of the presence of trees.

Another method used to do research on ethnography in the five different sources is interviews. The people who are getting interviewed are the users of the public space but also the residents of the location where the research is done. The people who are interviewed don’t have the same point of view as a researcher. The researcher looks at the facts. The interview shows that the users/residents answer based on their feelings. The answers are influenced on the feelings the users/residents get in the public space.

The research done in the five different sources about the study of ethnography have comparable results. There are links between the place, the health and social behaviour of the users of the public space. How this influences the health and wellbeing of the people using the public space but also the social disorder in a public space, the presence of crime and how safe the users feel at the public spaces.

### 3.5 *Case study*

With the method of case study, there are a lot of different approaches to do the case studies. It ranges from a general field studies to the interview of an individual or a group. The focus can be on an individual, a group, a community etc. Within the case study there are different tools that are used to get to the real case. It could be done with data technologies like life- histories, documents, in-dept interviews, participant observation etc.

The most common method that is used in the different literature is the method of the collective case study. Collective case study means that the case

study uses multiple other tools and methods to do this study as described before. In the different literatures with the collective case study, there is a method to find out about the home environment, how the environment is used (The book of Can, I. 2012), the respondent characteristic could also be an important measurement, same as the activity that can be measured, and the overall score of the square (Nasution A.D. and Zahrah, W 2011). The variety of activities is in different methods analysed at the Federation Square in Melbourne, Australia, this is done by the use of an rapid ethnography and digital video to document the process (Kjeldskov, J. Paay, J. (2008)). Another way that the research has been done is to study the different norms and values, and the geography of places in South-Africa. (Paasche, T.F. 2012)

Another research method that is used is the method of an exploratory case study. In this method field work and data collection are already undertaking before there is a research question. The pre-work can be done searching for social interaction separated by age, gender and place on different places (Clarck, A. Holland, C. Katz, J. and Peace, S 2007).

#### 4 CONCLUSION

Between the different analysed methods there are some similarities and differences. A few of the methods are clearly qualitative, while others are quantitative, but there are also methods that don't have a specific approach. These methods can be qualitative as well as quantitative. The biggest difference between a qualitative research method and a quantitative research method is most of the time the size of the group of participants. When there is a very big group of participants it is most likely a quantitative research method. Two of the five methods, survey and ethnography, that have been analysed throughout this research are clearly methods with a quantitative approach. If there is a much smaller group of participants it concerns a qualitative approach. The method with a qualitative approach is the interview method, this method use relatively small group of participants. The last two methods are case study and observation. These two methods are qualitative as well quantitative, because these methods used small and bigger groups of participants.

Every method researched the same topic but in a different way, for example, there are literature sources who only use women in their research, but there are also sources who uses every user on the se-

lected public space. There are also methods where the researcher only observes the participants, while other in other methods the researcher talks to the participants.

To see how these findings can conclude the research question, the aim is to look at the conclusions of the different research methods. The question is; what are the potentials of public spaces for creating social interaction? The best outcome of the methods is that the social interaction in different public spaces is highly desirable. Some of the participant use the public space during the day; while some of them use it at night. In some researches squares are mostly used for social interaction while in other researches urban parks were the most common place for social interaction. Public spaces are used to meet with the neighbours, with friends but also with strangers. The public spaces provides an opportunity to create social interaction between different layers of people. The public space within a city, in the center and the suburbs is seen as an enrichment of the environment where people can come together for various purposes.

#### ACKNOWLEDGEMENTS

This paper is made possible by the knowledge we have gained in the introduction we had during the lessons. But also the help and support from the tutors and students of other groups during the tutorials. Therefore we want to dedicate our acknowledgement of gratitude toward the following people:

First and foremost, we would like to thank Sukanya Krishnamurthy for her advice and support during the tutorials as our tutor.

Second, we would like to thank Daan Lammers for his advice and support during the tutorials.

Thirdly, we would like to thank once again our tutor Sukanya Krishnamurthy and Daan Lammers but also the other teachers Ana Pereira Roders and Anne Marie Peters - van den Heuvel for the introduction lessons about research in Urbanism and Architecture. And we want to thank the four of them for inviting all the guest speakers.

Finally, we would like to thank all the guest speakers: Sergio Figueiredo, Richard Verbruggen, Husnu Yegenoglu, Astrid Kemperman, Lisanne Havinga, Ad de Bont, Theo Arentze and Jacob Voorthuis for the interesting presentations about research during the lectures of Urbanism and Architecture.

## REFERENCES

- Albanesius, G. Goulet, L.S. Hampton, K. (2014) Change in the Social Life of Urban Public Spaces: The Rise of Mobile Phones and Women, and the Decline of Aloneness Over Thirty Years. Department of Communication, *School of Communication & Information, Rutgers*.
- Boddy, J. Bristed, H. DaSilva, M. Gudes, O. Sunderland, N. (2012) What does it feel like to live here? Exploring sensory ethnography as a collaborative methodology for investigating social determinants of health in place. *Health & Place* 18, 1056–1067
- Brumley, K. Gotham, K.F. (2002) Using Space: Agency and Identity in a Public-Housing Development. *City & Community*, 1:3
- Buijs, A. Elands, B. Peters, K. (2010) Social interactions in urban parks: Stimulating social cohesion? *Urban Forestry & Urban Greening* 9, 93–100.
- Can, I. (2012) In between space and social interaction: a case study three neighbourhoods in izmir. University of Nottingham, *Department of Architecture and the Built Environment*.
- Carpiano, R. (2008) Come take a walk with me: The "Go-Along" interview as a novel method for studying the implications of place for health and well-being. *Health & Place*, 15, 263-272
- Clarck, A. Holland, C. Katz, J. Peace, S (2007). *Social interactions in urban public places*. Great Britain: The Open University.
- Coley, R.L. Kuo F.E. Sullivan W.C. (1997) Where Does Community Grow?: The Social Context Created by Nature in Urban Public Housing. *Environment and Behavior*, (Vol. 29 No. 4) 468-494
- Evans, J. Ilmonen, T. Jacucci, G. Kurvinen, E. Oulasvirta, A. Peltonen, P. Saarikko, P. Salovaara, A. (2008) "It's mine, don't touch!": Interactions at a large multi-touch display in a city centre. *CHI Proceedings Multitouch and surface computing*, 1285-1294
- Ferdinand, A. Kelaher, M. Paradies, Y. Priest, N. Rouhani, L. (2014) Patterns of Intergroup Contact in Public Spaces: Micro-Ecology of Segregation in Australian Communities. *Societies* 2014, 4, 30–44.
- Goodman, E. Paulos, E. (2004) The familiar stranger: Anxiety, Comfort, and play in public places. *CHI letters Volume 6*, number 1, 223-230
- Huang, S.L. (2005) A study of outdoor interactional spaces in high-rise housing. *Landscape and Urban Planning* 78, 193–204
- Jamirsah, N. Rasidi, M.H. Said, I. (2012) Urban Green Space Design Affects Urban Residents' Social Interaction. *Procedia - Social and Behavioral Sciences* 68, 464–480.
- Jim, C.Y. Shan, X. (2012) Socioeconomic effect on perception of urban green spaces in Guangzhou. China: *Cities* 31, 123–131.
- Kazmierczak, A. (2013) The contribution of local parks to neighbourhood social ties. *Landscape and Urban Planning* 109, 31–44.
- Kjeldskov, J. Paay, J. (2008) *Understanding Situated Social Interactions: A Case Study of Public Places in the City*. Denmark: Aalborg University.
- Koskela, H. Pain, R. (1999) Revisting fear and place: women's fear of attack and the built environment. *Geoforum* 31, 269-280
- Krellenberg, K. Reyes-Päcke, S. Welz, J. (2014) Urban green areas and their potential for social interaction e A case study of a socio-economically mixed neighbourhood in Santiago de Chile. *Habitat International* 44, 11-21.
- Nasution, A.D. Zahrah, W (2011) *Public Open Space Privatization and Quality of Life, Case Study Merdeka Square Medan*. Indonesia: Department of Architecture, University of Sumatra Utara.
- Paasche, T.F. (2012) Creating parallel public spaces through private governments: a South African case study. *South African Geographical Journal*, (vol 94, no. 1), 46-59
- Raudenbush, S.W. Sampson, R.J. (1999) Systematic Social Observation of Public Spaces: A New Look at Disorder in Urban Neighborhoods. *American Journal of Sociology*, (Vol. 105, No. 3) pp. 603-651

# Gentrification and the effect on displacement. The effectiveness of different research methods

W.C.H. van Kessel, N.J.W. Loeters, A.M. Magdalinoiu, L.P.W. Robben, D. Stortelder  
*Architecture, Building and Planning, Eindhoven, Netherlands*

**ABSTRACT:** This research aims to investigate different methods used to monitor displacement in relation to gentrification. Since gentrification is a process, rather than a tool, it is essential to gather information and insight on every stage of the process in order to create awareness on how gentrification causes displacement. This study therefore focusses on the effectiveness of several methods in detecting displacement at different stages of the process. By setting up a comparative research through a literature review, different methods are explored and compared. Five main methods are considered, both qualitative as well as quantitative: mapping, data modelling, survey, interviewing, and experiments. A literature grid is conducted as a technique to analyse the information gathered. This analysis allows to identify the differences between the different methods, their advantages and disadvantages, their aims, their implementation and relevance, and their applicability. This research indicates that the different methods of researching displacement in gentrifying neighbourhoods are useful at different stages of the process. Simultaneously, to prevent generalising displacement in relation to gentrification, quantitative data collection should always be mixed with qualitative data collection methods, in order to gain insight in the actual reasons of people moving out. Having discussed different methods, both quantitative and qualitative, it is acknowledged that the best method is not a singular method, but a combination of both: mixed methods. With that, quantitative (or continuous) data collection can be interchanged with qualitative data collection that is collected at a specific point in time, in order to avert generalization, and to be able to measure the effects of gentrification.

**KEYWORDS:** *Gentrification, Displacement, Literature grid, Literature review, Methodology*

## 1 INTRODUCTION

In a time where urban policy often focusses on densification and infill, gentrification is more and more used as a strategy for urban renewal. Local governments, investors and urban planners often see gentrification as a useful instrument of 'top down' urban planning for the transformation of run-down urban areas (Avidar, Havik, & Wigger, 2007). Originally, the term gentrification was introduced by Ruth Glass in order to describe the 'bottom-up' process of the physical and social transformation of working-class London neighbourhoods in the 1960s. She defined gentrification as "the process, where the middle class (gentry) took over working-class areas, upgrading the neighbourhoods physically, socially and economically. Eventually, the neighbourhoods be-

came too expensive for their original residents." (Avidar et al, 2007, p. 1).

Regarding gentrification as a transformative process, rather than a tool, Metaal (2007) describes three phases generally identified in literature: the artistic phase, the mixed phase and finally the fashionable phase. Not every neighbourhood is undergoing gentrification through all these phases, or starts in the same phase. However, even though the phases are described in idealised terms and are exaggerated in order to identify trends, they give a good overview of how gentrification works as a process.

The process of gentrification generally starts with the artistic phase, in which alternative young people, creative professionals and students, move into what is often a neglected working-class city neighbourhood. The in-movers, often singles or couples, can be seen as free thinking pioneers, who want to distance themselves from the suburbs. They are attracted by the possibility of living relatively cheap in neglected but characteristic apartments buildings or formal industrial buildings, which

they can transform into a home of their own. The newcomers act like guests in the existing neighbourhoods.

The artistic phase is followed by the mixed phase. The population of the neighbourhood is now formed by a mix of both original residents and newcomers, and more and more people from the middle have moved in. Apartments are renovated on a larger scale and more thoroughly. The streetscape slowly changes as shops and restaurants appear. As the neighbourhood becomes more attractive, rents slowly rise, making the original inhabitants vulnerable to gradual exclusion. Speculators try to empty apartments, in order to sell them and to make a large profit.

In the final phase of the process, the fashionable phase, the population of the neighbourhood consists mainly of a cultural and economic elite. These new residents are more interested in the current high status of the neighbourhood, instead of having a mixed character. Among the in-movers are more families, who stay in the neighbourhood for a longer time. The market stabilizes. Again the streetscape changes, as the characteristic shops and restaurants often associated with gentrification are replaced by more exclusive commercial functions like closed fashion houses. Large new-build projects and restructuring plans upgrade the neighbourhood even more. The fashionable phase can be seen as the “ultimate consequence of the process” (Metaal, 2007, p. 7).

As already becomes clear implicitly in the description of the phases, gentrification can have both positive and negative effects. The positive effects of gentrification are well known and embraced: renovation of neglected urban areas, making safer places, reduction of crime and obtaining a better social mix. However, gentrification can come along with negative effects as well: it can cause displacement of original residents through the increase of rent, and the loss of affordable housing. This eventually leads to social segregation and the loss of social diversity, causing social inclusion and exclusion (Newman & Wyly, 2015).

Whereas policy-makers tend to use gentrification as a tool to improve neighbourhoods, developers benefit from the process to increase housing values, and consequently increase rents and housing prices. Both do either not care about the negative effects of gentrification, or do not have enough knowledge about the negative effects (Doucet, van Kempen, & van Weesep, 2011; Hamnett, 2009; Newman & Wyly, 2015).

Having more knowledge of displacement can be of great value for policy makers, to create awareness about displacement and to forecome that gentrification is used as a tool for developers. Therefore, this research focusses on displacement in relation to gentrification, aiming to investigate different methods used to monitor displacement in relation to gentrification. Since gentrification is a process, rather than a tool, it is essential to gather information and insight on every stage of the process in order

to create awareness on how gentrification causes displacement. This study therefore focusses on the effectiveness of several methods in detecting displacement at different stages of the process and the following research question has been derived: What are the advantages and disadvantages of the different methods to assess displacement caused by gentrification, and in which stage of the process are they most useful?

In order to answer the research question, this paper explores five different methods and compares them through a literature grid. This paper will accordingly set out the methodology used, followed by the results derived from the literature review. The five methods considered in this part are: mapping, data modelling, survey, interviewing, and experiments. The paper closes with the conclusion, that aims to give an answer to the research question.

## 2 METHODOLOGY

The methodology that contributed to fundament the paper is based on the findings of a team of five researchers. To complement the overall theme and overall argument, five different methods were chosen in order to be able to find advantages, disadvantages and gaps between them. Data was collected by each member selecting a research method and choosing five articles that made use of that specific method to investigate displacement as an effect of gentrification. The sample of five methods includes three quantitative methods (survey, data modelling and experiments) and two qualitative methods (mapping and interviewing). In selecting the reference articles researchers have made use of a qualitative method i.e. selection that is based on the researcher's own appreciation of the article's relevance for the study. Over an initial period of three weeks, the validity of the chosen articles has been assessed several times by comparing findings between different writings and deciding on a clear and concrete theme for the research: namely the occurrence of displacement as a consequence of gentrification. This way it was ensured that data is compatible and comparable in order to reach a valid and relevant conclusion.

The overall information retrieved regarding each method has been organized in a literature grid. As a tool of organizing and dissecting information the literature grid gathers the purpose, methods, findings, gaps, and mentions the keywords for each of the total 25 articles allowing a further comparison of the methods and findings; it is a “heuristic device [...] assisting [...] to write good quality literature reviews” (Yacobucci, 2012). The direct relationship between method, results and the presence of gaps in

the research have been in each situation the main ingredients that have been further used to process the information and to draw the conclusions. Moreover the literature grid has contributed to identify research strategies and procedures that influence a certain flow of the further research and that can contribute positively to shaping a relevant a valuable research paper.

A critical approach and dissection of the findings of each of the 25 scientific articles culminated with the confrontation of personal conclusions for all five researchers. The following step consisted of comparing results and finding the limitations or gaps for each method. As a critical remark on the paper, it is important to mention that the final conclusions result from a restricted study. Five methods provide only a small sample of the ways data can be collected and analysed. Moreover, the five articles selected for each method offer the same restrictive view regarding the method itself, its advantages and disadvantages. The final conclusions are based strictly on a narrow research and the researchers are aware of the plethora of possibilities that were not included in the study.

### 3 RESULTS

#### 3.1 Mapping

Mapping is often used as a method to show “patterns of gentrification” and to relate it to the spatial context of neighbourhoods. It is then used as a tool for comparative research, to show whether neighbourhoods are transforming over a certain period of time (Chapple, 2009; De Verteuil, 2010; Diappi, Bolchi, & Gaeta, 2013). In these situations, mapping is a qualitative method that uses data that is collected through quantitative research. Mapping can thus be a tool for analysing the process, and to gain insight in the phenomenon (Chapple, 2009; De Verteuil, 2010; Diappi et al., 2013; Mazer & Rankin, 2011) or as a tool to represent the data analysed (Diappi et al., 2013; Robinson, 2007). In both ways, mapping is used to gain insight in neighbourhood change, rather than as a means for collecting data.

In all circumstances, maps visually represent data, in a mode that is easy to read and to digest. This makes mapping both a powerful tool and a pitfall. Since the researcher chooses the data represented, he can easily manipulate the reader (De Verteuil, 2010; Robinson, 2007) and mapping as a research method can be very biased. Furthermore, using mapping as an analysis tool does not give any insight in the di-

rect reasons behind certain (spatial) patterns and neighbourhood transformation – for example people moving out of the neighbourhood - and to be useful further qualitative research is needed (De Verteuil, 2010; Diappi et al., 2013; Mazer & Rankin, 2011).

However, by mapping areas over a certain period of time, using clearly identified indicators, areas can be located that are undergoing the most intense (social) change (De Verteuil, 2010; Diappi et al, 2013). Furthermore, by visually analysing spatial patterns, social change can be related to urban renewal and development (De Verteuil, 2010; Chapple, 2009; Diappi et al, 2013). Mapping can thus give insight in the process of gentrification, and can be very useful as a comparative tool to juxtapose different areas within a certain district, and to identify areas that are facing transformation in all stages of the process.

#### 3.2 Survey

The method of survey is commonly used to collect quantitative information about items in a population. In the case of gentrification, survey can be used to gather quantitative evidence of displacement (Ellen & O'Regan, 2011; Stockdale, 2010) and to research whether forced movers actually suffer from this displacement in terms of their housing quality and increases rents (Kleinhans & Van der Laan Bouma-Doff, 2008). More open questions can also be investigated using survey, for example what the impact is of new residents on different neighbourhoods (Li & Wu, 2006) and what the social spatial outcomes of property –led redevelopment are (He & Wu, 2007).

A survey can either be done by the researchers themselves, distributing questionnaires from door to door (He & Wu, 2007; Li & Wu, 2006; Stockdale, 2010), or the researcher can use an existing dataset that contains information gathered through survey (Ellen & O'Regan, 2011; Kleinhans & Van der Laan Bouma-Doff, 2008). In the articles investigated this resulted in a relatively small sample of 500 households, at one point in time, when questionnaires were distributed by the researchers, compared to a sample of 55.000 households every two years in the American Housing Survey used by Ellen and O'Regan (2011). Given the long term nature of the process of gentrification, a longitudinal survey with a large sample where information is gathered at different points in time seems best, but this is not always feasible.

A survey does not always give a lot of insight into the reasons behind certain occurrences, for instance why people have moved out of a neighbourhood. Interviewing can then be used as a method to

explore findings in more depth (Stockdale, 2010). Another disadvantage of survey is that people who fill in a survey do not always provide (correctly) all the information asked for, such as information about occupation or employment status. Proxy variables then have to be determined (Stockdale, 2010).

The real advantage of survey as a method is that it can provide hard, quantitative facts to the discussion. In the case of gentrification it is often assumed that original inhabitants of neighbourhoods with income gains are displaced, affecting (former) inhabitants in a negative way. However, the quantitative evidence does not always add up, showing that displacement doesn't always occur (Ellen & O'Regan, 2011) and that if there is displacement, this does not always affect the forced-movers in a negative way (Kleinhans & Van der Laan Bouma-Doff, 2008). Survey seems especially suitable to research the process of gentrification in retrospect, finding evidence whether displacement has actually occurred or not.

### 3.3 Data modelling

Data modelling is a research method that is often used to understand and predict trajectories, tracks and patterns of gentrification and displacement related to the economic context in certain areas in the city. It is a method used to analyse and predict the transformation of a cluster (Van Criekingen, 2008), ward (Atkinson, 2000), a neighbourhood, or a selected area in the city (Séguin, Apparicio, & Riva, 2012; Yoon & Currid-Halkett, 2014; Lawrence, 2013). Conducting this data analysis, different quantitative, longitudinal data is used, which can be census track data (Lawrence, 2013; Séguin et al., 2012; Yoon & Currid-Halkett, 2014) or a sample of track data from a specific group of people (Van Criekingen, 2008). In combination with economic data this is used to gain insight in the process of gentrification. In the process of data modelling, the data collected from different measurements points in time is selected and transformed into parameters, resulting into a mathematical function. In this function the researcher combines factors of gentrification with each other. These functions, which could be a result of GIS analysis or survival analysis, help to suggest trajectories of gentrification (Van Criekingen, 2008; Yoon et al, 2014).

A disadvantage is that within this process the researcher can only test a limited number of factors in the function and models, resulting into a limited view on the process of gentrification. Moreover, in some cases the causality of the selected data and parameters cannot be proven (Lawrence, 2013). Fur-

thermore, the social reasons and political impact related to the process of gentrification are not taken into account in data modelling. Besides, the number of measurement points of the data used influences the trajectory of the prognosed gentrification process. For instance, a small number of measurement points could give a wrong prediction of the future, which can be either too positive or too negative.

Data modelling is a method that can be used to predict the process of gentrification and to understand the history of gentrification and to suggest the future of an area. However, if the data and the relation between factors used to make the model is too limited, it could give a false idea of the process of gentrification.

### 3.4 Interviewing

Qualitative interviews are used as a tool for gathering information about the process directly from the affected party in the case of displacement caused by gentrification. Furthermore, the information that has been collected is added to other types of data (Pennay, Manton, & Savic, 2014; Butler, 2002). As it directly involves the human factor, qualitative interviewing offers insight into the social aspects of gentrification and it proves to gain constant relevance in combination with methods such as observation and focus groups (Pennay et al, 2014; Butler, 2002). In all of the five analysed articles the conducted interviews were semi-structured, meaning that interviewers prepared a standard set of questions that were followed by particularly relevant questions. Since qualitative data is the basis of the research, interviews are open to criticism because their semi-structured nature and the way the researcher selects and organizes the data he later analyses can lead to biased results.

Focusing primarily on the social factor, qualitative interviews only hint at economic and geographical factors. Most of the times information can have an emotional character and it varies drastically from one social pattern to another showing that even though people have undergone the same process, their reactions and the extent to which they have been affected differs depending on their background. It is agreed that "qualitative research is concerned with individuals' own accounts of their attitudes, motivations and behavior. It offers richly descriptive reports of individuals' perceptions, attitudes, beliefs, views and feelings, the meanings and interpretations given to events and things" (Hakim, 2000, p. 26). Another disadvantage derives from the methodology that is conducted relates to the sample of subjects

that is selected: in all circumstances, the interviewees were individuals who have already been forced to move; therefore the view focuses on the process of displacement when it was completed.

The strong and definitive argument for conducting qualitative interviews is that through their semi-structured nature they open up views that can be omitted by quantitative data collection and as it follows displacement it can reveal a retrospective of the entire process. Regarding each of the subjects as an individual, qualitative interviewing goes beyond the surface and offers more insight on the problem of gentrification, opening up perhaps ignored areas of research. To conclude, qualitative interviewing is a valid tool for articulating the experience of those omitted from the consultation and the decision making processes recalling the sequence of events and their consequences.

### 3.5 Experiments

An experiment is a systematic and scientific approach within the research methodology, where the researcher manipulates one or more variables (for example changing the neighbourhood or city), and measures and controls any differences in other variables. It is an orderly procedure with the goal of establishing, refuting or verifying the reliability of a hypothesis. There have been a lot of experiments regarding displacement in relation to gentrification, but generally the experiment method is used in combination with other research methods (among others, the research methods in this paper). This combination of methods makes the output of the research more powerful. Experiments are designed to predict phenomena. Typically, an experiment is designed to explain a causation such as displacement in relation to gentrification. Experiments commonly produce and are based on quantitative data.

Within the studied articles, besides the different purposes of the experiments, there are certain differences in the scale of the experiments. Occasionally, a certain neighbourhood is analysed over a certain period of time (Lee, 2013). In other papers different neighbourhoods in the same city are analysed regarding the change of one variable (Bacqué, Fijalkow, Launay, & Vermeersch, 2010; Thibert & Osorio, 2014). Another possibility is the comparison of different cities (Davis & Oakley, 2013; Wolch, Byrne, & Newell, 2014).

An advantage of experiments is the fact that it can identify causes and effects of displacement and that it can be replicated. Disadvantage regarding the experimental method are demand characteristics. De-

mand characteristics occur when participants of an experiment form an interpretation of the purpose and unconsciously change their conduct to suit that interpretation. The fact that with gentrification often human beings are studied gives a possibility for demand characteristics (Bacqué et al, 2010; Davis & Oakley, 2013). Furthermore, the fact that not all variables can be controlled and that the chosen area or city could be a misleading example for the hypothesis (Thibert & Osorio, 2014) are negative characteristics of the experimental method.

Overall, it can be concluded that experiments, if they are implemented properly, are capable of recognizing causes and effects during all different phases of gentrification as mentioned in the introduction (artistic, mixed and fashionable). Experiments could be very useful in detecting displacement in relation to gentrification.

## 4 CONCLUSION

The analysis conducted through the literature grid indicates that the different methods investigated are all limited in relation to researching the process of gentrification and consequently displacement. A distinction can be made between qualitative analysis (for example interviewing, mapping) and quantitative analysis (survey, data modelling and certain elements of experiments). Whereas qualitative analysis commonly focuses on a certain moment in time, quantitative analysis typically focuses on a given period in time, mostly with a time span of ten years (Atkinson, 2000; Bacqué et al., 2010; Chapple, 2009; Davis & Oakley, 2013; Diappi et al., 2013; Ellen & O'Regan, 2011; Kleinhans & Van der Laan Bouma-Doff, 2008; Séguin et al., 2012; Yoon & Currid-Halkett, 2014). As a result, quantitative methods are useful tools in gathering information and to indicate transformation over time, whereas (further) qualitative research is needed to find out the actual reasons behind displacement.

Having seen and compared different methods, both quantitative and qualitative, it can be acknowledged that the best method is not a singular method, but a combination of both: mixed methods. The results of the literature review, as deduced from the literature grid, depict a mixture of methods in almost all papers, which suggests a strong relationship between the different methods. Furthermore, it can be concluded that the research is highly dependent on social, economic and geographical factors which can only be assessed by a mixture of methods.

To be useful for policy makers, it can therefore be suggested that both methods are to be used simultaneously, to be able to create insight in the phenomenon, to detect change and displacement and to be able to act on the negative effects of gentrification. Since gentrification is a process rather than a static position, it is needed to investigate whether certain areas are undergoing a (social) change to identify whether areas are facing gentrification and where consequently displacement can occur as a negative effect. To be able to identify change, comparative research is needed, both comparing different moments in time as well as comparing different areas within a city or a district.

One ought to keep in mind, that to prevent the researcher from being biased, the indicators investigated should be clearly identified in relation to gentrification and displacement. Furthermore, the boundaries of the areas and districts investigated should be evident and limited, to prevent leverage and therefore to be able to measure change (Atkinson, 2000; Bacqué et al., 2010; Butler, 2002; Chapple, 2009; Davis & Oakley, 2013; De Verteuil, 2010; Diappi et al., 2013; Lee, 2013; Pennay et al., 2014; Robinson, 2007; Séguin et al., 2012; Thibert & Osorio, 2014; Yoon & Currid-Halkett, 2014). Within those limits data should be collected continuously and compared annually/biannually, using quantitative methods, to be able to identify transformation. To investigate whether this transformation entails positive or negative effects, including displacement, it is important to follow up with qualitative research such as interviews and qualitative surveys to verify the data collected. Following this strategy could indicate gentrification in an early stage, and divert the negative effects of gentrification.

Further research is needed to investigate this hypothesis. It is self-evident that the five methods compared are far from covering all methods that can be used to investigate displacement in relation to gentrification. Furthermore, only five sources per method have been used to conduct the literature grid. To be able to cover ground, more sources are needed on the different methods chosen.

## REFERENCES

- Atkinson, R. (2000). Measuring Gentrification and Displacement in Greater London. *Urban Studies*, 37(1), 149–165. doi:10.1080/0042098002339
- Avidar, P., Havik, K., & Wigger, B. (2007). OASE # 73 Gentrification Gentrification : Flows and Counter-Flows. *Oase*, 73, 1–6.
- Bacqué, M.-H., Fijalkow, Y., Launay, L., & Vermeersch, S. (2010). Social Mix Policies in Paris: Discourses, Policies and Social Effects. *International Journal of Urban and Regional Research*, 35(March), no-no. doi:10.1111/j.1468-2427.2010.00995.x
- Butler, T. (2002). Copyright Sociological Research Online, 2002 Tim Butler (2002), 7(3).
- Chapple, K. (2009). Mapping Susceptibility to Gentrification: The Early Warning Toolkit. *University of California*, (Center for Community Innovation), 1–28.
- Davis, T., & Oakley, D. (2013). Linking Charter School Emergence To Urban Revitalization and Gentrification: a Socio-Spatial Analysis of Three Cities. *Journal of Urban Affairs*, 35(1), 81–102. doi:10.1111/juaf.12002
- De Verteuil, G. (2010). Evidence of Gentrification-induced Displacement among Social Services in London and Los Angeles. *Urban Studies*, 48(8), 1563–1580. doi:10.1177/0042098010379277
- Diappi, L., Bolchi, P., & Gaeta, L. (2013). Emergent Phenomena in Housing Markets. doi:10.1007/978-3-7908-2864-1
- Doucet, B., van Kempen, R., & van Weesep, J. (2011). “We”re a rich city with poor people”: municipal strategies of new-build gentrification in Rotterdam and Glasgow. *Environment and Planning A*, 43(6), 1438–1454. doi:10.1068/a43470
- Ellen, I. G., & O'Regan, K. M. (2011). How low income neighborhoods change: Entry, exit, and enhancement. *Regional Science and Urban Economics*, 41(2), 89–97. doi:10.1016/j.regsciurbeco.2010.12.005
- Hakim, C. (2000). Research design. Succesful designs for social and economic research. *Routledge, Taylor & Francis Group*, (2).
- Hamnett, C. (2009). City Centre Gentrification: Loft Conversions in London's City Fringe. *Urban Policy and Research*, 27(3), 277–287. doi:10.1080/08111140903132200
- He, S., & Wu, F. (2007). Socio-spatial impacts of property-led redevelopment on China's urban neighbourhoods. *Cities*, 24(3), 194–208. doi:10.1016/j.cities.2006.12.001
- Kleinhans, R., & Van der Laan Bouma-Doff, W. (2008). On Priority and Progress: Forced Residential Relocation and Housing Chances in Haaglanden, the Netherlands. *Housing Studies*, 23(4), 565–587. doi:10.1080/02673030802101641
- Lawrence, W. (2013). Displacement in D . C . : A Case Study of Gentrification and Granger-Causality in Our Nation ' s Capitol. *Illinois Wesleyan University*, (Digital Commons).
- Lee, J. K. (2013). Mega-Retail-Led Regeneration and Housing Price. *disP - The Planning Review*, 49(2), 75–85. doi:10.1080/02513625.2013.827510
- Li, Z., & Wu, F. (2006). Socio-spatial Differentiation and Residential Inequalities in Shanghai: A Case Study of Three Neighbourhoods. *Housing Studies*, 21(5), 695–717. doi:10.1080/02673030600807365
- Mazer, K. M., & Rankin, K. N. (2011). The social space of gentrification: the politics of neighbourhood accessibility in Toronto's Downtown West. *Environment and Planning D: Society and Space*, 29(5), 822–839. doi:10.1068/d7109

- Metaal, S. (2007). OASE # 73 Gentrification Gentrification , an Overview. *Oase*, 73, 95–115.
- Newman, K., & Wyly, E. K. (2015). The Right to Stay Put , Revisited : Gentrification and Resistance to Displacement in New York City, 43(1), 23–57.
- Pennay, A., Manton, E., & Savic, M. (2014). Geographies of exclusion: Street drinking, gentrification and contests over public space. *The International Journal on Drug Policy*, 25(6), 1084–93. doi:10.1016/j.drugpo.2014.06.001
- Robinson, T. (2007). Grass-Roots Critical Cartography : The University , Resistance Mapping and Social Change Tony Robinson Associate Professor , Political Science University of Colorado , Denver / Health Sciences Center Prepared for Presentation At the 2007 ESRI Education Us. *University of Colorado*, (Denver/ Health Sciences Center).
- Séguin, A. M., Apparicio, P., & Riva, M. (2012). Identifying, mapping and modelling trajectories of poverty at the neighbourhood level: The case of Montréal, 1986-2006. *Applied Geography*, 35(1-2), 265–274. doi:10.1016/j.apgeog.2012.07.005
- Stockdale, A. (2010). The diverse geographies of rural gentrification in Scotland. *Journal of Rural Studies*, 26(1), 31–40. doi:10.1016/j.jrurstud.2009.04.001
- Thibert, J., & Osorio, G. A. (2014). Urban Segregation and Metropolitics in Latin America: The Case of Bogotá, Colombia. *International Journal of Urban and Regional Research*, 38(4), 1319–1343. doi:10.1111/1468-2427.12021
- Van Criekingen, M. (2008). Towards a geography of displacement. Moving out of Brussels’ gentrifying neighbourhoods. *Journal of Housing and the Built Environment*, 23(3), 199–213. doi:10.1007/s10901-008-9112-2
- Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities “just green enough.” *Landscape and Urban Planning*, 125, 234–244. doi:10.1016/j.landurbplan.2014.01.017
- Yacobucci, P. (2012). Introducing the Literature Grid: Helping Undergraduates Consistently Produce Quality Literature Reviews. *Buffalo State College*, (February 2012).
- Yoon, H., & Currid-Halkett, E. (2014). Industrial gentrification in West Chelsea, New York: Who survived and who did not? Empirical evidence from discrete-time survival analysis. *Urban Studies*, 52(1), 20–49. doi:10.1177/0042098014536785

**Session 3: Economy**

# How to measure the economic value of architecture?

S.B. Bruinenberg, S.C.H. te Bogt, C.F.J. Fredrix, P. van Dodewaard & R.C. van den Hoven  
*Architectural Urban Design and Engineering, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** The true value of architecture is more than can be captured in numbers. Or, can we accurately determine the economic value to good architecture? This study investigates the attempts to measure the economic value of architecture by means of a literature study. Five commonly used research methods are described and investigated in this paper: data analysis, survey, (semi-) structured interviews, open interviews and finally case studies. Via a literature grid a large selection of literature was filtered to a total of five research papers per research method and was later reused to analyze the research papers. These research papers are first evaluated within their own research method, after which the different research methods are compared. Furthermore, this paper focusses on the influence these research methods have on the conclusions that can be found in the studied literature regarding the economic value of architecture. The results of the study suggest that this relationship between the quantifiable and the unquantifiable is problematic to measure or prove. Either measurable data cannot be traced back directly to architectural properties, or the subjective dimension of architecture is not directly translatable into objective data. However, most studied literature suggests that, while it cannot be fully proven through the applied methods, architecture is of more value than can be measured.

**KEYWORDS:** *Economic value of architecture, Real estate value, (urban) Design quality, Research methods*

## 1 INTRODUCTION

Architecture is seen as a creative profession, one of aesthetics and personal opinion, resulting in a product, or depending on one's viewpoint; art, which is hard to objectively quantify. Nevertheless, despite this not always being directly evident, research can function as a foundation for good design. In architecture research methods are often more abstract, aimed towards spatial and aesthetic characteristics. That is not to say that formal research methods are not implicitly dealt with or used, but they are often taking somewhat of a back seat. This may also be a consequence of architecture being subjective. Instead of research results being the pinnacle of a process, the results are interpreted

and processed afterwards into foundations for designs or design decisions.

To gain a further understanding of architectural research, it is necessary to dive deeper into these underlying research methods, which do not always clearly surface, as a greater knowledge of these methods may lead to a more informed interpretation of research results which in turn increase the validity of the theoretical building foundation. Provided with the opportunity to explore research methods in the field of architecture, a selection of these methods has been researched via a literature study.

The subject matter relates back to the issue as outlined at the outset of this paper: the apparent conflict between the abstract, subjective side of architecture and the quantifiable dimension of architecture; money. While there is consensus that the former aspect does have added value, to which

degree it influences the actual economic value of architecture remains unclear, as also argued by Baudrillard, a French sociologist and cultural theorist:

*“When acquiring real estate assets designed by signature architects, investors are buying both the rights to future income streams and, what many may perceive to be, a work of art. While equilibrium values for the former are anchored in economic fundamentals such as construction costs, demand and cost of capital; the work of art, has no basis for estimating equilibrium values, as it is arguably immersed in a more complex system of values.”* (Baudrillard, as cited in (Fuerst, McAllister, & Murray, 2009)). If good architecture is more than can be directly captured in figures, how can we objectify this added value? This leads to the following research question:

*How can added economic value by architecture be measured and researched?*

To better answer this question and therefore get the best insight in how different research methods influence research results, a selection of five methods is used to grasp the leading and most commonly used methods in the field of architectural economics, in relation to the added economic value of good architecture; quantitative data analysis (hedonic regression models), surveys, (semi-)structured interviews, open (narrative) interviews and comparative case studies.

Whilst these are the most used methods, they do require some elaboration, especially why they are categorized as outlined above. The order in which they are listed also indicates a scale ranging from factual, objective (quantitative data analysis) to opinionated, subjective (open interviews) with the other research methods forming a gradient between these.

Therefore the distinction between open (narrative) interviews and (semi-)structured interviews is the way in which the interviews are prepared and conducted. Although they both allow for elaboration outside the prepared questionnaire, a (semi-) structured interview is characterized by conducting the same interviews with multiple persons which means that the answers are comparable, whereas an open interview will yield more diffuse data.

Case studies are categorized as a separate method, although one could argue that they employ other research methods such as data analysis and

therefore is not a separate method. Furthermore, a survey can also have the characteristics of a case study if the sample is specifically selected from, for example, one building, and answering questions about that same building, but these surveys then focus on the method of gathering and processing data instead of comparing it to similar buildings. The difference between a comparative case study and quantitative data analysis is that a case study focusses on comparing buildings or areas supported by for example quantitative data, while quantitative data analysis is characterized by its focus on processing gathered data and being able to draw conclusions from that data through, in the studied papers related to the subject of architectural value, hedonic regression models.

After this brief introduction, the methodology is outlined which has been used for the literature study, followed by the findings categorized per research method, after which the findings will be compared in the conclusion of this paper.

## 2 METHODOLOGY

Given that this research paper aims to identify and research the most used methods, this study is based on a literature review. To collect the necessary studies, as much literature somewhat related to the concepts of economic value and architecture was gathered. This literature was sourced from academic databases, such as Google Scholar, Focus TU/e and Scopus. The gathered papers are of international nature, and no limitations were imposed on publication date.

In order to analyze the methodology behind the collected research papers a literature grid was constructed. This literature grid also acts as a relevance filter; the attributes as defined in the literature grid are meant to distinguish the papers which are fully relevant from those only loosely related to the subject.

The first filter criteria is whether or not the literature can be classified as academic or sufficient academic quality. This was judged to be the case when it was published in or by an architecturally and/or economically relevant journal, faculty, or conference, or if it was published by a major architectural, independent, institute with substantial academic contents. Subsequently, the contents of the literature were analyzed to determine whether or not they were relevant to the research topic.

The most important criteria on which the literature was judged was the method used in the research. The methodological structure of the research was analyzed and categorized into a research method, and a summary of the research setup was formulated.

After both content and methodology had been condensed and categorized, the literature grid facilitated comparison and judgment on whether to further study an article. Through a group discussion, a selection of five commonly used categories of research methods was chosen. Once these categories were defined, five relevant research papers were allocated to each research method. Where possible, a gradient within each research method was sought to gain an overview of the possibilities and limitation of such a research method. An example of such a gradient can be found in the selection of papers using a survey research structure; the surveys range from basic, short surveys to elaborate surveys with open questions.

The way the research methods influence the outcome of research is analyzed separately for each research method in the following chapter, after which they are compared and an overarching conclusion will be formulated.

### 3 RESULTS

#### 3.1 *Data Analysis*

When reviewing results from research that used a quantitative data analysis method, one might be tempted to consider the results simply to be true, as the data usually is quantifiable and therefore it seems to have an absolute power. Nevertheless, the study of several research papers dealing with quantifying the added economic value of (good) architecture reveals this outset requires a certain nuance.

The studied papers review both the positive and the negative aspects of quantitative data analysis, and try to answer their research questions (partially) through hedonic regression models. In other words, they attempt to allocate differences in rental and selling prices to specific characteristics, and so try to find if there are any premiums to 'good' architecture. This brings us to the first difficulties in evaluating the research results; what is good architecture? And how can this be quantified, or at least characterized in such manner that results can be allocated to it?

This is the problem as set out in the introduction of this paper; how to measure architecture? Good architecture is classified in (Fuerst, McAllister, & Murray, 2009) as architecture that has been created by award-winning architects. It therefore counts on the reputation of an architect after winning important prizes, assuming they deliver above par architecture, rather than reviewing the quality of the architecture itself. However, this definition of good architecture allows the possibility of appreciating the building as being more than the sum of its parts. Contrary to this is the definition of good architecture as found in (Vandell & Lane, 1989) in which, good architecture is degraded to a summation of only the aesthetic qualities of a building, leaving the true intrinsic value of architecture unstudied.

Even when accepting the problematic issue of defining architecture in order to make it measurable in a (hedonic regression) model, many results from the studied research papers struggle to allocate (rental) premiums to actual building characteristics. Other researches on the same topic are briefly examined in (Fuerst, McAllister, & Murray, 2009), concluding the datasets used are too small and not specific enough. Even with this knowledge and a much bigger database than the examined papers, Fuerst and his colleagues struggle to answer their research question satisfactorily and thus conclude they would need more data to do so as well. It however remains the question whether with even an infinite amount of data it would become possible to carefully and correctly identify the economic value of good architecture through hedonic regression models.

#### 3.2 *Surveys*

When studying research, in relation to the subject of the economic value of architecture, which employs a survey as the main research method it stands out that the vast majority focusses on the value for the end-user. This particular value can be traced back to economic value both directly, a user of the built environment is (to a certain degree) willing to pay a premium for a building that is regarded as high quality (Zemke & Pullman, 2008), and indirectly, for example user satisfaction (amongst other factors) contributes to movement in the rental residential market (Gibler, Tyvimaa, & Kananen, 2014).

Furthermore, while a survey is a method to acquire data, a secondary method is always needed to be able to draw meaningful conclusions. A commonly used secondary method is to feed the acquired data into statistical programs to be able to

identify relationships between variables. While through statistical analysis conclusions can certainly be drawn, one should also be careful interpreting and extrapolating on the results of such analysis; after all, the underlying data is still of non-factual nature, it represents opinions of a certain sample. This sample has to be carefully defined, but even when having done so, the survey can become unrepresentative and therefore unfit for extrapolation due to the survey being non-uniformly returned. Moreover, this dependence on the returned surveys could result in an unsuccessful survey; no meaningful conclusions can be drawn.

Another issue that can be identified is the survey design. When investigating architectural value, one cannot translate this directly to a question in a survey. This means that a survey will have to be designed in which a combination of questions can afterwards be combined into an overall variable which can be analyzed to determine the architectural value of a studied phenomenon. Within the scope of this study, a varied selection of survey designs can be found, ranging from 14 simple questions (Chileshe, Khatib, & Farah, 2013) to 140 rate-on-a-scale questions (Buys & Miller, 2012), which identifies the different possible approaches. The risk of survey results not being fully representative is illustrated well in a study of residential high-rise buildings in São Paulo (Ornstein, Villa, & Ono, 2011), where in focus groups, meetings held after the survey was conducted, relevant concerns arose which were not captured in the survey.

Nevertheless, providing the survey accurately captures the studied phenomenon and the responses are representative, a survey can be a successful vehicle to study the value of architecture from the user's perspective.

### 3.3 *Structured and semi-structured interviews*

Interviews were conducted and combined with survey-results and quantitative data analysis in (Schieders & Hermelink, 2006). The interview part is structured in a way that it explains the measured data and grades given by tenants, to validate the results. The survey-results and quantitative data are provided in the paper, the findings from the interviews are only mentioned in a few instances to clarify an abnormality and once to explain a result.

While improving readability, it makes the research less transparent, as interview results could be used selectively. The study briefly relates to architectural properties of the building, but does not find a correlation between it and economic value,

nor does it find correlation between architecture and satisfaction. As it was not the main subject matter of the research and did not study it thoroughly it cannot be used to explain the phenomenon. This also applies to (Buys & Miller, 2008), which was set up similarly, albeit with a smaller sample (1 project, 11 respondents). Since creating value through architecture was not its main topic, but only a minor point, they could not reach definitive conclusions.

The structured interviews in (Lieftink, Bos-de Vos, Lauche, & Smits, 2014) examine business models from architecture firms, which are structured by using a code book. This code book consists of main and sub themes derived from a literature research. Based on these themes, interview questions were formulated. By structuring the interview, they attempt to make the answers of different firms comparable. The findings of the research conclude architectural firms fail to change their business model, instead resorting to cutting costs. The changes were relatively minor and consisted of the addition of new services offered (like BIM), partnering, collaborating and targeting international markets.

A different method to structure interviews can be found in (Appel-Meulenbroek, 2008). It defined keywords related to satisfaction with an office building and counted the amount of times a word was mentioned in the interviews to determine the importance of a certain aspect, which is done separately for the keep, push and pull factors. This results in a table that contains quantitative data obtained from interviews, which are in turn analyzed for a relationship between satisfaction and loyalty. Resulting in a correlation, although a surprisingly small one. The push and pull factors are mostly determined by the building's state and can be managed by a landlord. Keep factors on the other hand are all building properties that cannot easily be changed by a landlord. The research was conducted on a relatively small sample size of only two office buildings. Although the amount of interviews per building is adequate (18 and 20 interviews), this makes the data and conclusions questionable to use in a broader sense.

An international focus is present in (Keivani, Parsa, & McGreal, 2001), in particular on the post-socialist cities of Budapest, Prague and Warsaw. The paper is based on semi-structured interviews with a large sample of 132 respondents, which were selected to represent a broad spectrum of experts and regular inhabitants with different incomes. It explores large foreign-invested developments and examines how the quality of the cities is preserved.

Due to major differences and little similarities between the cities no trends were found. This results in a conclusion of an advisory nature on how to structure their developments, instead of one on the economic value of the discussed projects.

### 3.4 *Open interview methods*

The method of an open interview is often used to support case studies or prove statements by the authors. In the discussed papers the interviews take different roles, these and their results are discussed here.

Several statements of the author are underlined with a quote from an interview in (Worple, 2000). Personal communication and interviews are used by the author but it does not provide detail about the way these communications or interviews have been set and structured. Neither a full nor a partly transcript of these interviews is provided in the paper. Quotes used to support the author's way of thinking are of a qualitative and holistic view, they provide opinions on values but the author fails to quantify these in economic terms. Resulting in a superficial research, yet which can be used as a base for more qualitative papers.

Summarized interviews in (Loe, 2000) provide the reader with information about how architects create economic value by their way of practice in different countries and in selected case studies. Practice, the interviews show, differs in various European countries, the interviews show that the different way of working is just as important to research as the resulting design and its effects. An interviewed architect stated the French economy loses 6-7.5 billion Euro each year due to the way architects and engineers cooperate. He argues design is not just a result, it is a process too, and therefore added economic value -or savings on construction and design costs- can be achieved in the design process as well.

The perspective of other stakeholders was used in (Commission for Architecture and the Built Environment (CABE), 2001) to gauge their perceptions of the social, economic and environmental value of good (urban) design. The qualitative assessment includes detailed interviews with at least ten key stakeholders per case study. Qualitative responses of interviewees were backed up by quantitative data from the pro-forma interviews. This results in a conclusion which was not based on a few interviews, as in (Worple, 2000) and (Loe, 2000), but on quantified interviews, providing broader and objective views.

A similar approach in (Commission for Architecture and the Built Environment (CABE), 2003) uses interviews with stakeholders to back up the by data calculated added economic value (residual sum of net worth deducted by the building costs). To compare each case on a like-for-like basis all values were measured at a single point in time.

Interviews were used with selected respondents of a survey to clarify any points and "to reflect a fuller understanding of the motivations behind the replies received" in (Laing & Urquhart, 1997), this method does not back the author's own opinions, but it provides the author with qualitative information about quantitative data. When aberrant results were found, they could be explained or clarified via the open interviews. It seems this is the actual strength of an open interview method, backing or nuancing data with clarifications from the source.

### 3.5 *Case Studies*

Case studies are often used to investigate a single individual or a region to a great detail. Within the case study research method many combinations of methodologies are possible. Qualitative or quantitative parameters, big data, observations and interviews, all can be included into a case study.

The author in (de Vette, 2008) questions whether physical investments in deprived neighborhoods lead to a higher economic value of surrounding buildings and if so, to which extent. In the case study two neighborhoods in the Dutch city of Utrecht are analyzed on quantitative values such as the economic value of houses and the amount of houses being built every year. These values are compared with the quantitative data of the whole of Utrecht. Adding new houses, or renovating outdated houses in the neighborhoods leads to a value increase of the surrounding houses.

Contrary to the previous case study, in (Reutskaja & Nueno, 2009) the quantitative research values are difficult to compare. In this research the economic impact of a building designed by a 'starchitect' is studied. The economic impact of a building is considered as a summation of various aspects for example employees, taxes and duties, increase of tourism, etc. By valuating all parameters the author manages to extrapolate homogeneous quantitative data out of every case. All data is combined into a graph, with the economic value on the y-axis, and the investment costs are drawn on the x-axis. After comparisons, the Guggenheim Museum in Bilbao turned out to have the most 'economic impact'.

Case studies can also contain qualitative data. In (Millhouse, 2005) several interviews are summarized. The author states that it has long been known that 'good' architecture results in an increase of surrounding property values. According to Millhouse it would be more interesting to know to what extent companies are willing to invest in architecture for the public good. This question is answered by open interviews with industry leaders.

In (Commission for Architecture and the Built Environment (CABE), 2001) the CABE questions in which way good urban design produces economic and social value, to identify and where possible measure the values. The research team uses different case studies of mixed-use developments in the United Kingdom in conjunction with a literature review. Case studies contain different research methods, such as urban design analysis, which are reinforced by interviews with key stakeholders. Information on development costs and on expected and actual returns on investments is added to provide quantitative data. Since different types of data are collected the research does not have a clear conclusion.

The same commission focusses in (Commission for Architecture and the Built Environment (CABE), 2003) on how different types of layout and design may affect the costs of development and the value of the end-product. The case studies were selected on the basis that they represented a range of design and layout principles. The research parameters used contain quantitative data such as amount of public space, amount of houses and investment costs.

#### 4 CONCLUSIONS

Throughout this study the different methods used for researching economic value in architecture and how different papers try to define and quantify this value have been explored. Each method emphasizes a different kind of value and uses different tools for obtaining data to calculate or appraise this value.

By using a literature grid it became clear that the economic value is not always directly measured or discussed, but instead is inherited from a different, underlying, value. Two definitions of value, in addition to the directly measurable data as the foundation of an economic value, have been formulated which are defined by indirectly measured or descriptive data relating to the economic value; the professional value and the end-user value.

The professional value focusses on the influence the professionals in the field of architecture and real estate exert on the economic value of architecture. The value of the end-user is characterized by the level of satisfaction an inhabitant derives from the building, and as a consequence, whether or not an inhabitant feels the price paid for their living environment is justifiable, and if they are prepared to pay a premium for 'good' architecture.

Data analysis is in its nature of analyzing quantitative data such as property value and sale prices, more focused on economic value. This data is easily comparable and therefore produces more reliable conclusions, given that there is sufficient data. It is much harder to define where this economic value is derived from, as this depends on various factors and not only the economic value architecture creates.

The studied surveys mainly focus on the end-user value. A difficulty derived from this focus, is the possible non-uniform return of a survey, with the danger of data not being representative for both the research sample and for drawing conclusions on a larger scale. However, if the collected data is representative it can be extrapolated and clear conclusions can be formulated. Similar to data analysis, surveys have difficulties in defining architecture and value; several questions are combined into a variable that represents these concepts, but it cannot be directly measured.

Semi-structured interviews try to address the weakness of incomparable data, by controlling the answers to make them comparable or generate quantitative data from the interviews, at the risk of making the interviews shallower and less informative.

Open interviews share the same strengths and weaknesses of a survey regarding the relevance and the subjectivity of the data, an additional weakness is the fact that data is not as easily comparable as with the aforementioned methods. Interviews are a very important way to obtain in-depth information or clarifications which cannot be gathered by any other method, and thus the interview is often used in addition to the other methods.

Case studies are a combination of the aforementioned methodologies, specified to a certain region and or individual case, therefore sharing the strength or flaws of those methods. They collect detailed data from a certain place, making it more comprehensive but harder to apply the conclusions in a broader sense, specifying the research method.

Difficulties that multiple research methods have in common is defining what good architecture is. Various ways are used to define good architecture such as: Is it designed by 'starchitects', investment cost, quality of materials, and increase of tourism. This makes it hard to compare different researches as the definition of good architecture varies.

In conclusion, it is impossible to point to one particular method as the best one to research the economic value of architecture, as all methods have their own strengths and weaknesses on this subject. Therefore it is necessary to combine different methods to get a complete picture of this subject. Subsequently this study recommends the use of the case study method, which by its nature allow for the combination of multiple other research methods.

The majority of the studied papers provides pretty clear conclusions, which however cannot be extrapolated to a general conclusion regarding the economic value of architecture, as they apply to a specific case or to value as a whole. There is a consensus throughout the different studies that there certainly is an added economic value in good architecture, although they fail to quantify this. Whilst the studied literature shows that the subjective side of architecture is indeed valued, the exact impact on the economic value remains unclear.

## ACKNOWLEDGEMENTS

This paper could not have been produced without the advice and knowledge from all (guest) lecturers during the classes of the course Research in Urbanism and Architecture at the Eindhoven University of Technology. We have gained a lot knowledge about methodologies, methods and academic paper writing. Many thanks go to Dr. Ana Pereira Roders, ir. Anne-Marie Peters-van den Heuvel and especially to ir. Daan Lammers and Dr. Sukanya Krishnamurthy for their personal tutoring. Also, we are indebted to our fellow students who peer reviewed this paper, their constructive feedback and the endless 'value of architecture'-debates we had during our coffee breaks with the Real Estate Management & Development students.

## REFERENCES

- Ahlfeldt, G., & Maennig, W. (2010). Stadium Architecture and Urban Development from the Perspective of Urban Economics. *International Journal of Urban and Regional Research*, 34.3, 629-646. doi:10.1111/j.1468-2427.2010.00908.x
- Appel-Meulenbroek, R. (2008). Managing "keep" factors of office tenants to raise satisfaction and loyalty. *Property Management*, 26(1), 43-55. doi:10.1108/02637470810848886
- Buys, L., & Miller, E. (2008). Retrofitting commercial office buildings for sustainability: tenants' perspectives. *Journal of Property Investment & Finance*, 26(6), 552-561. doi:10.1108/14635780810908398
- Buys, L., & Miller, E. (2012). Residential satisfaction in inner urban higher-density Brisbane, Australia: role of dwelling design, neighbourhood and neighbours. *Journal of Environmental Planning and Management*, 55, 319-338. doi:10.1080/09640568.2011.597592
- Chileshe, N., Khatib, M. J., & Farah, M. (2013). The Perceptions of Tenants in the Refurbishment of Tower Blocks. *Facilities*, 31(3/4), 119-137. doi:10.1108/02632771311299403
- Commission for Architecture and the Built Environment. (2001). *The Value of Urban Design*. London: Latimer Trend.
- Commission for Architecture and the Built Environment. (2003). *The Value of Housing Design and Layout*. London: Latimer Trend.
- de Vette, W. (2008). *Invloed van renovatie en nieuwbouw op waardeontwikkeling in woonwijken*. Amsterdam: Amsterdam School of Real Estate.
- Fuerst, F., McAllister, P., & Murray, C. (2009). *Designer Buildings: An Evaluation of the Economic Value of Signature Architecture*. Reading: University of Reading.
- Gibler, K. M., Tyvimaa, T., & Kananen, J. (2014). The relationship between the determinants of rental housing satisfaction and considering moving in Finland. *Property Management*, 32(2), 104-124. doi:10.1108/17538271111111839
- Hough, D. E., & Kratz, C. G. (1982). Can "Good" Architecture Meet the Market Test? *Journal of Urban Economics*(14), 40-54.
- Keivani, R., Parsa, A., & McGreal, S. (2001). Globalisation, Institutional Structures and Real Estate Markets in Central European Cities. *Urban Studies*, 38(13), 2457-2476. doi:10.1080/00420980120094614
- Laing, R. A., & Urquhart, D. C. (1997). Stone cleaning and its effect on property market selling price. *Journal of Property Research*, 14, 329-336. doi:10.1080/095999197368564
- Levere, M. (2014). *The Highline Park and Timing of Capitalization of Public Goods*. San Diego: University of California.
- Lieftink, B., Bos-de Vos, M., Lauche, K., & Smits, A. (2014). Exploring Business Model Innovation in Professional Service Firms: Insights from Architecture. *Business Models and Strategies: Organizations and Alternative Forms of Organizing*. Rotterdam: European Group for Organizational Studies.
- Loe, E. (2000). *The Value of Architecture: Current Thinking and Context*. London: RIBA Future Studies.

- Millhouse, J. A. (2005). *Assessing the Effect of Architectural Design on Real Estate Values: A Qualitative Approach*. Cambridge (USA): Massachusetts Institute of Technology.
- Ornstein, S. W., Villa, S. B., & Ono, R. (2011). Residential high-rise buildings in São Paulo: aspects related to the adequacy to the occupant's needs. *Journal of House and the Built Environment*, 26, 73-84. doi:10.1007/s10901-010-9200-y
- Reutskaja, E., & Nueno, L. (2009). *Starchitects, Emblematic Buildings and their Effects on Urban Economics*. Barcelona: IESE Publishing.
- Schieders, J., & Hermelink, A. (2006). CEPHEUS results: measurements and occupants' satisfaction provide evidence for Passive Houses being an option for sustainable building. *Energy Policy*, 34, 151-171. doi:10.1016/j.enpol.2004.08.049
- Vandell, K. D., & Lane, J. S. (1989). The Economics of Architecture and Urban Design: Some Preliminary Findings. *American Real Estate and Urban Economics Association Journal*, 17(2), 235-261.
- Worple, K. (2000). *The Value of Architecture: Design, Economy and Architectural Imagination*. London: RIBA Future Studies.
- Zemke, D. V., & Pullman, M. (2008). Assessing the value of good design in hotels. *Building Research & Information*, 36(6), 543-556. doi:10.1080/09613210802380993

# Economic development and suburbanization in the United States

R. Breukelman, I. Grasman & R. Kuilman

*Architecture, Eindhoven University of Technology, the Netherlands*

D. Niu

*Urban Design and Planning, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** There are lots of different research papers available on the internet. To increase the precision on the search for papers, aiming for specific research methods is needed. However students' knowledge about different research methods is only focused on or architecture or urban planning they are limited. The theme, Suburbanization, combines both architecture and urban planning and is a worldwide universal phenomenon. It has deeply influenced the development in architecture and urban planning. As known suburbanization varies globally it is related to many aspects in our world, society and daily life.

In this paper about suburbanization we focused the topic on economy and United States. Economy is always present in our society and the suburbanization in the United States is quite familiar and obvious to us. Therefore our topic will be: "Economic development and suburbanization in the United States". Our first goal is to gain information of often used research methods on our topic. The second goal is to understand these different methods which results in a conclusion about the best research method is to be used. This will make it easier in the future for students to improve their result in the search for papers.

We've found four most relevant research methods, and for each method we collected five papers. The methods are Case Study, Panel Data research, Observation and Regression Analysis. As we based our search on other sources, all sources are secondary. Most of the sources are quantitative sources and the results are independent. The way how these are analysed is qualitative and will lead to an inductive and mutual simultaneous process.

**KEYWORDS:** *Economy, Methodology, Suburbanization, United States*

## 1 INTRODUCTION

As students of the Technical University of Eindhoven, we are starting researchers. We aren't experienced in searching for scientific papers yet. To improve the precision of the search for papers in the future for us and other students, we have researched four different research methods. These four different methods are Observation, Panel Data, Regression Analysis and Case Study. Starting with Observation, this is a research method where you base your result on different kind of observations. The main advantage is that researchers can change their approach any time, so it is a very flexible research method. The second method is Panel Data. This is an economic and statistical research method used to compile and analyse large amounts of data that has been measured over multiple decades. The most common

source used for collecting data is census, this is a procedure that systematically records and acquires information about members of a certain population. These censuses are taken every ten years to have the most reliable and current data possible. Panel data is a useful tool when researching a long period of time with large amount of data and you want to compile it into smaller panels. The third method is regression Analysis. This is a statistical method for investigating a relationship between different variables. It is used to determine the causal effect of one variable to another variable. In this case how economic growth and suburbanisation are connected in American cities. The last method we are going to use in this paper is Case Study, Case study is a research method involving a detailed investigation of a single individual or single organized group. The target may be mono, comparative (bi-or multi) to the relationship between economic growth and suburbanization in developed counties. Besides just reading the refer-

ences about these examples, paying attention is needed to the relationship of content in between them. Because each paper is not isolated in all five case study papers, to research them and also in time finding them need to follow as a sequence, in the result part, we will demonstrate the network of case study of our topic.

For all four research methods we found five papers for each method. With the help of a literature grid we were able to analysis and compare the papers with each other to draw different conclusions. We found that observation is useful when you are testing hypothesis with a clear cause and effect and with an existing theory as a starting point. Panel Data is mostly used to find out the influence of certain aspects in different situations in combination with longer periods of time. Common disadvantages of Panel data can be for instance: Variation over time may not exist for some important variables and there is still a very strong assumption needed to draw clear conclusions from panels. Regression analysis can only be used when heaving a few variables and the researcher needs to interpret the results correctly. Case study is the most lucid and visualized methodology especially for us starting researchers and the people who know just little about the related knowledge. But the disadvantages of it are also obviously, most case study are qualitative and less theoretical about the content, and the conclusion part is also just focus the case it researched, it is not easy to draw conclusions just form several unrelated references.

## 2 METHODOLOGY

To compare the researched papers of a certain category, a literature grid is made. For every paper there is written down why it is written, what is researched and how it its researched. Each of these three categories are divided in sub-categories. The "why" consists out of the Problem field, what is the inducement of writing the article and secondly the state of the art. What is researched yet so far within the research field? The "what" is about the aims and objectives, what does the researcher want to research and secondly the sources, what kind of sources are used. There are primary and secondary sources. The "how" is divided in 5 subcategories. The first subcategory is epistemology, this is about approach from author, and it is either objective, subjective or constructive. This is almost similar to the second subcategory: Theoretical perspective. There can be a positivism perspective, where a conclusion is drawn

based mainly on facts while value judgements are less important. Interpretive perspective is just the other way around. The thirds subcategory is 'research approach', is it deductive of inductive. When researching from rough to fine (top-down), it is called a deductive research. When researching from fine to rough (bottom-up) it is called an inductive research. The methodology is the fourth subcategory, this is the way how the research is done. For example, in this paper we discuss the methods: observation, panel data, regression analysis and case study. Timeframe is de last category, you can have a longitudinal or cross sectional timeframe. longitudinal is a linear research paper where you start collecting data of one subject over a longer period, while in Cross sectional data you collect data of multiple subjects from a certain moment of time. The data is from a certain moment.

Once the grid is filled in for each paper, the results can be compared. Similarities and differences between results are leading to conclusions.

## 3 RESULTS

### 3.1 Observation

However the subject of the articles are all about economic development and suburbanization in the United States, there are still very different problems, and reasons why a certain paper is written. Most papers (4 out of 5) are written to find causes for the suburbanization in the United States.

The state of the art is for all articles the same in broad terms. The current situation is that there are papers developed earlier, but are not completely in line with the problem. So additional research has to be done to find a solution to the problem.

The aims and objectives are also in broad terms the same. In all 5 papers there is data used from a secondary source. This data is used in a model (formula developed by other authors and sometimes adjusted to the situation). The model results in a estimation.

Epistemology and theoretical perspective are respectively "objectivism" and "positivism" in all 5 papers. The theory, discussed in the papers, are for everyone the same. Because it's based on facts and numbers. The data is compared, and concludes if the assumptions were right. However about the conclusion can be discussed sometimes.

The process of the research is deductive in all 5 papers. There is a theory, and based on this theory there is a hypothesis. With observation there can be

confirmed if the hypothesis is true. The methodology is in four papers of course observation in a cross sectional timeframe. The estimations are all based on data from a certain moment. There is no estimation based on date of a period of time. One paper is observation in longitudinal timeframe, in this paper data of multiple years is compared.

### 3.2 Panel data

Panel data is mostly used to analyses certain trends and changes over a long period of time, and in this case the effects of suburbanization on various economic developments. Panel data will give insight in the amount of change that has happened or what caused different changes over multiple decades by using census data to be as efficient as possible, without getting overwhelmed by huge amount of data. The data pool for this will compile out of so called MSA's (Metropolitan Statistical Areas).

When you look for example at the article written by Robert A. Margo (1990), he uses panel data to analyse what the role of income has been with the increase in suburbanization that happened after the Second World War. With the use of census data (think of housing data, income rate, race, gender) and various functions he is able to calculate what the exact role of the increase of income was in suburbanization. In this case suburbanization after the Second World War increased with 17,5% over a period of 40 years and 43% of this increase could be lead back to the increase of income of the households in the United States.

Another example is the article written by Leah P. Boustan and Robert A. Margo (2013) which talks about the connection between the so called 'white flight' (white households moving to the suburbs after the Second World War) and the increase in black homeownership in urban areas. Also in this case there is use of various census data over a longer period of time and different functions to calculate how much influence 'white flight' truly had with the increase of black homeownership in urban areas or that different causes.

So there is a clear trend going on talking about panel data and what the results can be when you use this kind of methodology. First identifying a certain change (in this case suburbanization) and this change is caused by various different aspects. The researcher wants to know how much influence a certain aspect has had on the change. With the help of multiple different functions and the use of census data of multiple MSA's an influence can be calcu-

lated. And with the use of various panels this data will be easier to overview.

### 3.3 Regression analysis

Regression analysis is a statistical process for investigating a relationship between a dependent variable and one or more independent variables. The regression helps the researcher to understand how the independent variable is affected by changing one of the dependent variables while keeping the other independent variables fixed.

In our case how in the U.S. economic development and suburbanisation has changed in the last century. By defining our topic to terms as dependent and independent variables, the dependent variables would be the economic development in the United States and the other dependent variable would be suburbanisation in the United States. The topic actually exists out of 2 different questions that needs to be answered separately, but are somehow connected. The independent variables are for example as found in the Literature: the level of educated people, Initial population, initial income, past growth, output composition, unemployment, inequality, racial composition, segregation, size and nature of government, and the education of their labour force, etc.

The regression analysis is a common and often used test but is a relative simple method and thereby has its limitations. When there are more aspects the researcher needs to interpret the outcome carefully. The regression analysis definitely gives an result but not always about the relation between the dependent and independent variable.

In all the papers the data of the different aspects can be easily combined. And interpreted easily. The results can be compared directly which gives a precise conclusion and less change for misinterpretation. Only in the paper of Edward L. Glaeser, José A. Scheinkman and Andrei Shleifer, Economic growth in a cross-section of cities, they used a more sophisticated method. Using a framework/formal setting to combine data form independent variables of different sources. After using this formal setting every independent variable is evaluated separately and combined to form a conclusion.

### 3.4 Case Study

From the literature grid, these five case study papers involve detailed investigations of a single individual or single organized group, the target may be mono,

comparative (bi-or multi) to the relationship between economic growth and suburbanization in the United States.

The paper subjects have some inner logical connections, the first one is about general relationship between economic development and suburbanization; secondary it focuses on industry suburbanization; next is the producer service employment; then is the comparison between Japan and United States to find the unique character in American suburbanization and in the last paper is about: main actor is the future suburbanization in 21st century.

These papers also follow some sequences like chronological order, spatial order and the importance of the industry order. Because as we know, the suburbanization and economic development is a broad topic. Reading the isolated five papers without inner relations is hard to understand the suburbanization in USA, we need some case studies that can form some sequences like timeline, international comparison and the conjecture to the future that finally weave a logical network that can help us to understand the suburbanization in USA.

For example, the paper from Peter Mieszkowski and Edwin S. Mills used the case in MSAs in American, by showing the suburbanization first makes sense and then they gave us the theory about this process, it is a quite normally methodology when studying a case. Then a general conclusion is given and at the same time the author gave the references of this conclusion and the results/influence of it on national level.

When we focus on the more detailed aspects, the methodology changed, in the papers of Richard Walker and Thurston L, the authors always gave the definition of the suburbanization on one field, then these two papers told the history review of the cases to readers. In that order they can make the definition clear at start because the subjects are not general and familiar. As last they give a reason and the conclusion.

The case study papers also can be combined with other research methodologies, in the papers which prior mentioned, they also use panel data to help make it more clear, but the data just focuses on the cases of the paper.

In the paper from Qiang Gao, it used the comparison method. to emphasize the suburbanization in United States and how it is more remarkable worldwide because of the character of American economy. And in the Paper from Daming Wang, it focuses on the future of suburbanization.

All of these five case study papers consist of a stereo case study research network from the beginning to future and cross countries.

#### 4 CONCLUSION

According to this research, in the observation methodology it is clear that the state of the art is in broad terms the same. It is a continuation of research, where earlier papers have stopped. It's a complement to the exiting theory instead of a complete new theory, which starts from the beginning. Also we have got four papers with cross sectional data and one with longitudinal. This confirms the possibility that researches in both timeframes are possible, however cross sectional might be more common.

The observation methodology is useful for testing hypothesis with a clear cause and effect. In this case, the data was mainly consisting out of numbers, because it's about economics and population. But also qualitative data could be used for this, putting it in tables, diagrams of other figure and observe what conclusion can be drawn out of it.

So observation papers can be used best to research causes and effects, in a cross sectional timeframe and where there is already written some theory as starting point. The downside of the method is that conclusion might be drawn too quickly if you see similarities in your observation, while there could be multiple causes.

It is clear that each article use panel data follows the same format, they want to find how much influence a certain aspect has had, they cover large period of time and they all use census data from various MSA's, some do have a larger data pool then others. So it is a very clear methodology used for this kind of research.

If the researcher want to know what kind of influence certain aspects had on a change over a long period of time, panel data is a useful tool to use. You are able to process large amount of data from various sources and compile this into a readable overview with clear conclusions.

The most common problems with Panel Data is that sometimes variation over time may be inflated by measurement errors and in order to draw clear conclusions from the panels you do need to have very strong assumptions.

The regression analysis is a method for finding the relationship between a dependent variable and one or more independent variables. Knowing what the effect of one independent variable has on the de-

pendent variable is only possible if the results are interpreted correctly.

Although regression is often used it is a simple analysis. Therefore the regression analysis definitely gives a result but not always about the relation between the dependent and independent variable. If the research question is too specific or too large a different method needs to be used for a better results and conclusion.

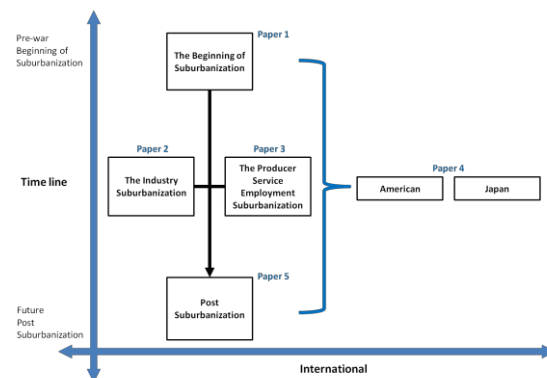
Obviously, case study is a visualized and lucid research method when researching. The cases in the material tells us the What, How and Why directly and we don't need to dig into the definition or the process, the conclusion is also easy to understand.

But as I prior mentioned, for one topic, there will be a large number of references for us if we read them without a logical order or just read them blind, it does not benefit the research. Thinking about the sequence is needed or to read them with distinct intention. Also the references can be formed into a net, and this net is what we actually research.

From all these five case study papers, they can be divided in to two kinds, one like the papers of Peter of Mieszkowski and Edwin S. Mills and of Qiang Gao in general terms, other papers are more specific.

The general case study started with results and the specific ones prefer to state the phenomenon, because the general one is familiar to readers but it is not lucid of specific ones.

When looking at the conclusion of them, besides the result itself, the general ones also give the implications to the government but the specific ones just focus the cases themselves.



\* The relation between five references about Case Study

## ACKNOWLEDGMENTS

Our gratitude goes out to the teachers of the course "Research in Urbanism and Architecture" with special thanks to Daan Lammers who gave us feedback and Sukanya Krishnamurthy who gave us feedback in addition to Daan Lammers the last three meetings.

We also thank Ana Pereira Roders and AnneMarie Peters-van den Heuvel and other lecturers who give us the wonderful lectures about the course, we received a great benefit from them.

## REFERENCES

- Andrews, M. S. (1988). The Effects of Suburbanization on Agriculture. *American Journal of Agricultural Economics* , 14.
- Baum-Snow, N. (2007). Did highways cause suburbanization. *The Quarterly Journal of Economics* , 32.
- Boustan, L.P. Margo, R.A. (2013). A Silver Lining to White Flight? White Suburbanization and African-American Homeownership, 1940-1980.
- Boustan, L.P. (2007). Escape from the city? The role of race, income, and local public goods in post-war suburbanization. *National Bureau of Economic*
- Curtis J. Simon, Clark Nardinelli (2002). Human capital and the rise of American cities, 1900 – 1990. *Regional Science and Urban Economics*
- Daming Wang(2002). Post Suburbanization, the analyze of economic growth in Orange Country, U.S. *Policy*, 10. 2002
- Edward L. Glaeser and Jose A. Scheinkman, Andrei Shleifer (1995) Economic growth in a cross-section of cities. *Journal of Monetary Economics* 36
- James w. Harrington and Harrison s. Campbell (1997). The Suburbanization of Producer Service Employment, 1997, Center for Business and Economic Research, University of Kentucky.
- Mills, E. S. (1984). Metropolitan Suburbanization and Central City Problems. *Journal of Urban Economics* , 17.
- Minh Chau To, A. L. (1983). Externalities, preferences, and Urban residential location: Some Emperical Evidence. *Journal of Urban Economics* , 17.
- Peter Mieszkowski and Edwin S. Mills(1993). The causes of metropolitan Suburbanization, Rice University, Houston, Texas and Northwestern University, Evanston, Illinois.
- Qiang Gao(2001). The comparison of the urbanization in American and Japan, Ocean University China, college of economics.
- Richard Walker.(2001). Industry builds the city: the suburbanization of manufacturing in the San Francisco Bay Area,1850–1940, *Journal of Historical Geography*, 27, 1 (2001) 36–57.
- Robin M. Leichenko (2001). Growth and Change in U.S. Cities and Suburbs. *Gatton College of Business and Economics, University of Kentucky*

- Stacy Jordan, John P. Ross, Kurt G. Usowski (1998). U.S. sub urbanization in the 1980s. *Regional Science and Urban Economics* 28
- Somashekhar, M. (2013). The Suburbanization of Ethnic Economies and Its Impact on Income, 1990-2010. *Princeton University, New Jersey*
- Sukkoo, K. (1999). Urban development in the United States, 1690-1990. *National Bureau of Economic research*
- Thurston, L. (1994). Causality in the Suburbanization of Population and Employment. *Journal of Urban Economics* , 14.
- Winston, R. (2014). The Impact of Suburbanization on Poverty Concentration: Using Transportation Networks to Predict the Spatial Distribution of Poverty. *Duke University Durham, North Carolina*
- W. Norton Grubb (1982). The Flight to the Suburbs of Population and Employment, 1960-1970. *Journal of urban economics* 11

# Methods on global trade connectivity and its influence on the process of globalization in megacities

A.R. Rouwendal, B.A.H.L. van Kaathoven, G.C. Stoop, J. van der Linde & T.S. Hartman  
*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** ‘Globalization is defined as the interconnectedness of capital, production, services, ideas, and culture on a world-wide scale’ (Yeung, 2000). In this regard, ‘major cities have become key dynamic points in this regard’ (Borja & Castells, 1997). Within this framework the selected methods by means of the applied methodology, the literature grid, used in this paper provide insight in the process of globalization in megacities by using global trade connectivity as an indicator of this process. The applied methods all show a capacity to demonstrate this link. For example, ‘a city’s transnational airline connections are one measure of its globalization since such links are integral to globalization’ (Otiso et al. 2011). A conclusion of this paper is therefore that global trade connectivity influences the process of globalization in megacities and that this process can be quantified and qualified with the use of the selected methods.

While ‘major cities’ are stable and established within the global network and global economy, it is the emerging economies that provide the dynamics. So the question arises whether the ‘megacity’ is a product of emerging economies, just as the ‘major city’ can be read as a product of the established global economy. To make this relationship concrete there is a need to ‘verify the relationship between globalization and urbanization of the global economy’ (Van der Ploeg & Poelhekke, 2008). The research question gives the direction the paper takes: which methods are applicable to assess global trade connectivity and its influence on the process of globalization in megacities? Through the applied methodology, the literature grid, state-of-the-art methods are selected that are at the forefront of contemporary research into this topic; this to cover the depth of the current debate on this topic.

In order to assess and evaluate the projected relationship the proposed methods are based on mixed method research. The methods have been selected by means of the literature grid. Following the literature grid no primary sources but exclusively secondary sources are being used. Selected megacities will serve as case studies to assess the relationship between the degree of urbanization and its role in the global economy. Projected methods to assess this relationship are based on both quantitative data by means of data- and statistical analysis and on qualitative data through empirical, ethnographical research. Mapping as a method is proposed as it integrates both quantitative and qualitative data in a concise manner and may serve as the link between the researcher and a specialized or general public.

**KEYWORDS:** *Globalization; Urbanization; Megacities; Connectivity; Trade-flows*

## 1 INTRODUCTION

A collection of cohesive and consecutive trends seen throughout various disciplines have initiated concerns which have led to the research question for which appropriate research methodologies will be considered throughout this paper.

First of all, globalization is a phenomenon that seems to suffer an ever increasing amount of atten-

tion, ultimately leading to a situation in which it has endless different definitions for an equally endless amount of disciplines that deal with it, or are confronted with its consequences. The possibility of an unambiguous and generally accepted explanation seems to fade by the day. Though this research does not aim at a generally accepted definition of globalization, it is important to consider the refractory nature of globalization in order to approach suitable research methods. It thus proves to be a struggle to define globalization. This concern can readily be

stressed by considering only a few attempts. (Yeung, 2000) for instance has described globalization as 'the interconnectedness of capital, production, services, ideas and culture on a world wide scale.' (Yeung, 2000) therewith implies globalization to be the product of innumerable events, coherent with our first concern. Globalization: initiated by innumerable disciplines and propelled by increasing trade, information flows and communication. Measuring globalization by means of narrowing down thus becomes a problematic activity.

This is where the second concern emerges. Though measuring globalization is a precarious aim, there are several observations that can primarily be blamed on the phenomenon of globalization. One of those is empathized by (Borja & Castells, 1997) in their essay 'The Role of Planners in the Globalization Era'. After considering the obstructive nature of globalization to let itself be measured, and its nature to affect innumerable events and disciplines, (Borja & Castells, 1997) conclude that 'Major cities have become key dynamic points in this regard'. This implies that 'major cities', as (Borja & Castells, 1997) define, are key in approaching the development of globalization. This view is supported by (Friedman, 1995) who states that: 'These "major cities" have become the real physical spaces of the process of globalization. Definitions given of these "major cities" are "world cities".'

For this research we wish to distinguish what we consider as generally accepted perceptions of 'major cities' in the wide spectrum of city typologies. While the 'world city' in general is a stable and established appearance in a global network of technology, sociology and economy, it exists directly along with the emerging economies that provide necessities in maintaining this global network of technology, sociology and economy. The question then arises whether or not the 'megacity' (Bourdeau-Lepage & Huriot, 2006) is a product of emerging economies, somewhat aligned with how we can perceive the 'world city' as a product of the established global economy. Therefore this research aims to answer the following research question:

Which methods are applicable to assess global trade connectivity and its influence on the process of globalization in megacities?

To approach this possible relationship we will delimit some of our perceptions according to reviewed literature, or as (Van der Poeg & Poelhekke, 2008) describe 'verify the relationship between globaliza-

tion and urbanization of the global economy.' Globalization will be considered as the phenomenon described by (Yeung, 2000). Megacities are hereby defined as 'cities with more than 10 million inhabitants, most of them being located in less developed countries (LDCs)' (Bourdeau-Lepage & Huriot, 2006).

The paper will firstly clarify the general research methodology, for which in this case a literature grid is used. Studying the sources that comply with our earlier explained assumptions and delimitation of the phenomena then gives direction to possible research methods. From this the general research methods have been chosen, respectively: case studies, data analysis, ethnography, statistics and mapping. The results of these methods in context of their individual as well as their collective suitability of researching the proposed issue are then discussed throughout the results. Within this section the selected methods will be assessed on their strengths and weaknesses and crossrelated in order to verify their suitability on the proposed topic; this approach has its roots in the applied methodology of the literature grid. Based on these outcomes the research stems for a general conclusion.

## 2 METHODOLOGY

The literature grid is used as a methodology to effectively summarize the large amount of research methods found in the reviewed literature. The literature grid is basically the organization of a scheme used for the data, which is found through the applied methodology of the literature review. The literature grid must not be compared with an annotated bibliography, because it does more than simply describe sources in a list. The references are critically analysed through comparison with other sources, cross-related and organized in a manner that guides the reader to a unified conclusion.

The literature review (frequently referred to with synonymous terms such as review of literature and research history) is a summary and synthesis of relevant literature on a research problem. It is a coherent, integrated, narrative, interpretive criticism that critiques the status of knowledge of a carefully defined topic of the relevant selected literature. Or more succinctly, a literature review is a coherent synthesis of literature presented as discursive narrative (Notar & Cole 2010).

Sources and methods are selected on basis of the literature grid, because the grid gives information of which researches have been conducted earlier; evidently related to this research topic. This is necessary to understand on one hand whether or not the research in this area is considered of value, and on the other hand if it is an area of research that is realistic to investigate. It helped to build a critical overview of the selected sources to define the main research concepts performed by the researchers. With the grid, it is possible to relate this research in position with others and simultaneously identify seminal works within the research area to establish trends within the topic. (Yacobucci, 2012) explains the literature grid in the following way:

‘The literature grid can properly summarize qualitative research as well as quantitative research as an archetype that can be modified to fit the needs of any particular assignment. From the design of the research question to the organization of the material.’ Within this paper the strategies and approaches have been analysed from all the sources that have been of intrinsic quality within the investigation to find which research method can help to investigate the posited research question: which methods are applicable to assess global trade connectivity and its influence on process of globalization in megacities? This resulted in five methods in a particular sequence. How these methods relate toward the posited research question as well as all the particularities of the methods themselves will be explained in the following chapter; results.

### 3 RESULTS

The literature grid resulted in a multiplicity of research methods, with roots in both quantitative and qualitative data to assess and review the research question from different angles. The literature grid provided insight in what way and sequence the research should happen. As such, the result will follow this sequence by explaining the selection of case studies, its quantitative data analysis, its qualitative ethnographical research, the analysis by means of statistical data and the full integration of all steps by means of mapping.

#### 3.1 Case study

The first method used is the ‘case study’. This method is ideal for finding prescriptively described sets of information layers, which will ultimately lead to the confirmation that the chosen research methods are suitable for the further research.

As an example (Alfasi & Fenster, 2005) examined the impact of globalization on two large cities in Israel by placing several elements (population size, composition and socioeconomic status) as indicators in a conceptual framework. Their research concludes that the cities fundamentally differ in their orientation in the spectrum of globalization. A comparative study gives insight in the effect of connectivity on globalization. The different layers of this phenomenon can be placed against each other to examine the contrasts and the similarities between the two cases on one hand and the reason for these contrasts and similarities can be found on the other hand.

(Jenkins & Wilkinson, 2002) based their conclusion in the article on a case study which is set out of elements (economy, society and governance) in an appropriate conceptual framework for assessing the institutional capacity in the cities of Maputo and Cape town to respond to the global challenge. Based on their analysis they initially draw conclusions about key factors which seem to be shaping local responses to globalization. Though the research concludes why the elements in the conceptual framework are the elements that caused the global impact between the different cities, they were not able to understand the impact of global forces on the particular cities in their case study.

Both these researches use a conceptual framework in their case studies. However, not both of them manage to find an appropriate answer to the question what effect the indicators in the framework have had on city specific situations. It seems that the difference in quality of the analysed information between the qualitative and quantitative approaches were too difficult to codify to initially reflect it on the specific cities.

(Groat & Wang, 2002), explain that the case study is related to other methods by triangulation. They set out different methods by arguing that some of the methods used in the case study have more similarities than others. To come to this conclusion they placed these methods close to each other. For example, on one hand the interpretive and qualitative research has a holistic approach in common to the research subject, though they differ in time

perspectives. On the other hand, qualitative research shares a focus on naturally occurring circumstances with its correlational researches, yet is dependent on quantitative data. By analysing the relation between the set of methods in a case study it is possibly to find the quality standards within.

The methods of data analyses, ethnography, statistical data and mapping data will form the triangulation for an appropriate conceptual framework within the case study.

### 3.2 Data analysis

The gathering of data that meets the information layers found in the case studies, however, is a problematic challenge. (Arribas, Perez & Tortosa-Ausina, 2009) have argued that the phenomenon of globalization is nearly too complex to let itself be measured, let alone the globalization of international trade. This has been argued from many perspectives in different researches. (Beaverstock, et al., 2000) have pleaded that the current globalizing trend simply transcend the main generators of data in this area of city development, whether they are cities, states or countries, to a level at which they decided to dedicate their entire research initiate the storage and making available of data across the globe.

Sadly, throughout the researches the problematic nature of data collecting in the context of globalizing trade continues. Once the range of data is collected, both trades' as well as globalizations' quintessential nature come about; instability and changeability. A good example of how both of these phenomena are hit by daily change is the research of population growth in the world's largest cities performed by (Mulligan & Crampton, 2005), which shows future trends that affect globalizing trade as the global urban gravity centre changes. Also, (Arribas, Perez & Tortosa-Ausina, 2009) argue that data is hard to process as there is no indication what exactly is the maximum value of globalization.

These problems can be eliminated to a workable certain level of data collecting. (Beaverstock, et al., 2000) for instance advocate for the necessity of standardization by means of different measurement methodologies. Also, they imply the requirement to 'set standards' within the research, done in their case by the adoption of Standard of Perfect International Integration.

(Arribas, Perez & Tortosa-Ausina, 2009) also argue that the globalization of trade depends on rela-

tions between individuals. Values of trade are thus related to, amongst others, hierarchical tendencies amongst people and cities as researched by Taylor, which suggest that whatever data is collected and how they are characterized within the research, it is inevitable that they should be mirrored to a certain amount of qualitative research in order draw objective and credible conclusions from them.

### 3.3 Ethnography

In the context of the relation between trade connectivity and globalization of megacities, Ethnography is proved a very suitable methodology for this qualitative side of the research. To be able to really understand the process of globalization in megacities, you need to understand the changes that occur in society and urban cultures. Ethnographic research studies patterns of behaviour of cultural, social, religious aspects of society. By studying these aspects you get a more detailed look on how a certain foreign society works, what is changing, and what it is changing into.

Culture and social behaviour is what distinct countries of regions from one another, this also makes a soft boundary between the country side and the city. (Garcia Canclini, 1997) stated that: With the growing megacities and the globalization that comes with this, cultures within cities change, the country side invades the city (Garcia Canclini, 1997). This article also notes the purpose of ethnography, to focus on what is vanishing and what kind of new patterns are developed. The globalization was originally initiated by capitalism and industrialization of the city. The result was an exodus from the country side (Hart, 2004). Ethnography is according to (Holston & Appadurai, 1996), the only way to capture the complexity of urban life, and to understand the experiences of communities, tribes and neighbourhoods as part of the organizing structures and networks. Concluding things only on basis of statistics or analytical models would not simple not cover it entirely. The more deeper and personal reasons behind the phenomenon can be tracked down by observation. Also a direct approach with people is the key to detect opinions and real problems in society. The process of globalization is a phenomenon that started almost at the same time with the movement towards the city. It is a demand for new prospects, connectivity and internationalization. An Ethnographic inquiry can bridge the gap between meaning and structure

without losing sight of the complexity, context, and power imbalances (Murphy & Kraidy, 2003).

### 3.4 Statistical analysis

Since a research in developing countries and its megacities, is related to trade and travel, is a brought topic, the data which can be found is brought as well. In order to be able to compare the data, or work with it in any way, a categorization is needed. This categorization is done through the method of statistical analysis. Depending on the quality and quantity of the data, as well as future intention of the research, a classification scheme needs to be set up. This scheme is of big impact on future results, so it should be set up with the full analysis in mind. In the article by (Balassa, 1983) the used scheme is chosen on a basis of data quality.

The categorized data can be analysed through all sorts of systems. (Fan & Scott, 2003) used the Herfindahl index. (Jung & Marshall, 1983) researched whether X causes Y through the Granger definition, and (Devarajan & De Melo, 1987) use a common method for pooling cross-section and time-series data. The used method is the least-squares-with-dummy-variables (LSDV) method, combined with the variance components model. This last model is a way to take missing variables in the equation. Such an equation can be:

$$Y_{it} = \sum_{s=1}^2 \alpha_i^s D_{it}^s + \sum_{s=1}^2 \beta_s D_{it}^{*s} T + u_{it}$$

Where  $Y_{it}$  denotes the growth rate of a country.  $T$  is a time index and the other variables are data sets converted to usable numbers through classification. (Devarajan & De Melo, 1987).

The significance of the results acquired through any chosen statistical analysis model, should be tested. This is done through a well-known part in statistics known as the t-test. This test is particularly needed in cases with questionable data. (Smith & Timberlake, 2001) describe how they obtained the used data. Some data was not available, so some hypothesis was necessary. Other used data was questionable, because sources changed their policies during time. Many limitations were appointed, but Smith and Timberlake did not mention the impact of these limitations in the following analysis.

More accurate is the research on CFA zones in African Monetary Unions. (Devarajan & De Melo, 1987). The main reason for a better quality of the data is the fact that the researched countries have more

in common, because of the fact that the research is focussed on Africa. Although enough data is collected to do a reliable research (Devarajan & De Melo, 1987) describe thoroughly which statistical model they use and how they handle dummy variables. While enough data is collected, some dummy variables were unavoidable. By doing a t-test, (Devarajan & De Melo, 1987) stated with a certain significance that countries which participate in the CFA zone have a faster economic growth rate than those countries which do not participate. Although the research and conclusion seem accurate, the results are sensitive to which of the classification schemes is used.

### 3.5 Mapping

By means of mapping extremely large and complex processes as global connectivity, such as airline connections, shipping networks and other transnational trade flows can be condensed into one comprehensible scheme or image. The quality of mapping is that a process such as globalization can be concretized, visualized and thus linked to spatial phenomena. As such, mapping is the concretization of the need to 'verify the relationship between globalization and urbanization of the global economy' (Van der Ploeg & Poelhekke, 2008).

In order to demonstrate this relationship mapping trade flows is key. By means of literature study different trade flows have been identified: 'measuring airline connectivity' (Bassens et al. 2012), measuring 'spatial pattern of maritime linkages' (Ducruet & Notteboom, 2012) and 'global liner shipping networks and land-based networks' (Ducruet & Notteboom, 2012). By using mapping as a method, the research question can be answered since global trade connectivity is mapped and because of its prime influence on the process of globalization, globalization is concretized into a spatial, tangible form.

For this method many secondary sources are collected. As such, mapping is a condensed view of a vast repository of data. This is both the strength and weakness of mapping as a method; mapping relies on vast repositories of data that is usually not acquired first hand. Usually its primary source is unknown thus obscuring the reliability of the data. As such, other methods used in this paper, such as ethnography, use primary sources and are thus more reliable in that respect. Another weakness of mapping is the risk of oversimplification; dismissing or underestimating the complexity of the data which a

multiplicity of authors acknowledge, such as (Bas-sens et al. 2012). In the worst case it may lead to a banalization of the complexity of the researched topic. The applicability of the method of mapping is wide, even within the scope of this paper the majority of references used mapping at some point in their research. This affirms the general applicability of this method in many domains of research and its strong analytical ability and quality.

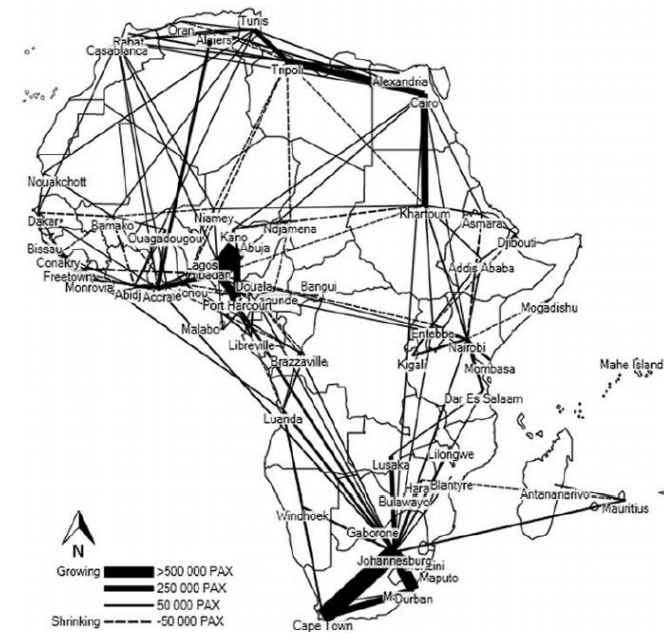


Figure 1. An example of mapping: major growing and shrinking air connections in the African urban network (2003–2009). (Bas-sens et al., 2012).

#### 4 CONCLUSIONS

The methods in this paper have all shown to be applicable within the scope of the topic, global trade connectivity and its influence on the process of globalization. The literature grid has shown that both quantitative data as well as qualitative data is integrated into the paper by means of the selected methods and that the authors of the referenced papers have used multiple of these methods in their research as well. This cross-relation of the use of methods strengthens the general applicability of selected methods within the theoretical framework of the posited research question. The methodology, by using the literature grid, has resulted in a sequence of methods to answer the research question. The approach of this paper mimics the approach of (Bas-sens et al., 2012). Within the scope of this paper the

theoretical approach taken has been to narrow down the topic by means of selecting relevant case studies, to analyse the acquired data by means of data- and statistical analysis, to complement this data with ethnographical research and to finalize and communicate the result by means of mapping.

While the topic is only a theoretical framework to impose the methods on, it shows by means of real applied research that this cross-section of methods is applicable and covers the depth of the proposed research question. In this approach case studies as a method showed a good combination of qualitative and quantitative approaches. However, since every research nonetheless differs in quality standards, which makes the research by means of case study as a method difficult to codify, this has implications for the analytical methods. Since case studies are hard to codify, it may be difficult to use for further analytical methods.

Considering the other two methods, data analysis and statistical analysis, the following applies: the data that is collected forms the majority of the scope that gets used later on in the research. Therefore, it is important to understand what this data range will be used for. Also, every research which is based on various data-sets needs classification of the data in order to do further research. A statistical model is then set up to appropriate the research and to the obtained data. A t-test can provide information about the reliability of the research (Smith & Timberlake, 2001). The methods of data- and statistical analysis structure the obtained data and determine the scope to draw further conclusions upon. Data analysis has been complemented and reviewed by using ethnography and statistical analysis as a method. Case studies and data analysis rely on secondary sources. As to fully cover the scope of the research, in this specific theoretical framework, additional primary sources are necessary that are being provided by ethnography. Ethnography is thus used to explain the meaning of the observations based on quantitative data by means of participating observation. Ethnography thus provides primary sources.

To finalize, in order to fully integrate qualitative and quantitative research by means of the selected methods of case studies, data analysis, statistical analysis and ethnography the method of mapping has been applied. Mapping is the final synthesis of the gathering of data, its analysis and its representation. Mapping, as a method and result in itself, is a strong analytical tool to condense large datasets into

comprehensible images and schemes for a specific or general public. Mapping as a method can serve as the main connection between data and analysis and finally between researcher and general public.

The research question can be answered through using the five methods, that is, the applied methods are effective to assess global trade connectivity and its influence on the process of globalization.

## ACKNOWLEDGEMENTS

Since this paper has been published as an exercise for the course Methodology in Architecture and Urbanism (7X811) and as a preparation for the International Conference on Living Cities Perspectives held at Eindhoven University of Technology our thanks go to all didactic activities and people associated with the course. Special thanks goes to ir. Daan Lammers for his written feedback on the draft version of the paper. This provided handles for the final development of the paper. In a later stage of the development of the paper the peer review forms have proven to be especially helpful. We would like to express our gratitude to the tutors for giving extensive feedback and suggestions on how to proceed with the paper through the peer review forms.

## REFERENCES

- Allen, J. (1999). Cities of power and influence: settled formations, in: Allen, J., Massey, D. and Pryke, M. (eds) *Unsettling Cities*, pp 181-228. *London and New York: Routledge*.
- Alfasi, N., & Fenster, T. (n.d.). A tale of two cities: Jerusalem and Tel Aviv in an age of globalization. *Cities*, 351-363.
- Arribas, I. & Pérez, F., Totosa-Ausina E. (2008). Measuring Globalization of International Trade: Theory and Evidence. *World Development*, 37, 127-145.
- Balassa, B. (1983). Exports, Policy Choices, and Economic Growth in Developing Countries After the 1973 Oil Shock. *Journal of Development Economics*, 18, 23-35.
- Bassens, D., Derudder, B., Otiso, K. M., Storme, T., & Witlox, F. (2012). African gateways: Measuring airline connectivity change for Africa's global urban networks in the 2003-2009 period. *South African Geographical Journal*, 94(2), 103-119.
- Beaverstock, J.V., Smith, R.G., Taylor, P.J., Walker, D.R.F. & Lorimer, H. (2000). Globalization and World Cities: Some Measurement Methodologies. *Applied Geography*, 20, 43-63.
- Borja, J., & Castells, M., (1997). *Local and Global: Management of Cities in the Information Age*. *London: Eartscan Publications Ltd*.
- Bourdeau-Lepage, L., & Huriot, J.M., (2006). Megacities vs. global cities: development and Institutions. *ERSA conference paper*.
- Devarajan, S., & De Melo, J. (1987). Evaluating Participation in African Monetary Unions: A Statistical Analysis of the CFA Zones. *World Development*, 15(4), 483-496.
- Dicken, P. (2011). *Global shift: Mapping the changing contours of the world economy*. 6th edition. *Global shift: Mapping the changing contours of the world economy*. 6th Edition. New York: Guilford Press.
- Ducruet, C., & Notteboom, T. (2012). The world wide maritime network of container shipping: Spatial structure and regional dynamics. *Global Networks*, 12(3), 395-423.
- Fan, C. & Scott, A. (2003). Industrial Agglomeration and Development: A Survey of Spatial Economic Issues in East Asia and a Statistical Analysis of Chinese Regions. *Economic Geography*, 79(3), 295-319.
- Friedmann, J. (1978). *The spatial organization of power in the development of urban systems*, Bourne, L.S. & Simmons, J.W. (eds) *Systems of Cities*. Oxford: Oxford University Press, 328-40.
- Friedmann, J. (1995). Appendix: The World City Hypothesis in World Cities In A World System. ed. Paul Knox and Peter J. Taylor, 317-332. *Cambridge: Cambridge University Press*.
- Garcia Canclini, N. (1997). Urban cultures at the end of the century: The anthropological perspective. *International Social Science Journal*, 153, 345-356.
- Grant, R., & Oteng-Ababio, M. (2012). Mapping the invisible and real "African" economy: Urban e-waste circuitry. *Urban Geography*, 33(1), 1-21.
- Groat, L., & Wang, D. (2002). *Architectural Research Methods*. New York: John Wiley and Sons.
- Hart, K. (2014). Jack Goody: The Anthropology of Unequal society. *Reviews in Anthropology*, 43(3), 199-220.
- Holston, J., & Appadurai, A. (1996). Cities and citizenship. *Public Culture*, 8(2), 187-204.
- Jenkins, P., & Wilkinson, P. (2002). Assessing the Growing Impact of the Global Economy on Urban Development in Southern African Cities; Case Studies in Maputo and Cape Town. *Cities*, 33-47.
- Johansson, R. (2003, September). *Case Study Methodology*. Keynote speech at the International Conference Methodologies in Housing Research, Stockholm.
- Jung, W. & Marshall, P. (1983). Exports, Growth and Causality in Developing Countries. *Journal of Development Economics*, 18, 1-12.
- Kaarst-Brown, M. L., & Guzman, I. R. (2014). *Cultural richness versus cultural large scale insights: Culture, globalization, and IT workers*. Paper presented at the SIGMIS-CPR 2014 - Proceedings of the 2014 Conference on Computers and People Research, 55-58.
- Kearney, P., Whelton, M., Reynolds, K., Muntner, P., Whelton, P., & He, J. (2005). Global burden of hypertension: analysis of worldwide data. *Lancet*, 365, 217-223.
- Kraas, F. (2007). Environment and Development in the Former South African Bantustans: Megacities and global change: key priorities. *The Geographical Journal*, 173(1), 79-82.
- Lloyd, P., de Leeuw, J., Mahutga, M. & Galloway, J. (n.d.) *Measuring Economic Globalization: Exploring Methods to Map the Changing Structure of World Trade*.
- Miller, D., & Slater, D. (2000). The internet: an ethnographic approach. *Oxford: Berg*.

- Mulligan, G.F. & Crampton, J.P. (2005). Population Growth in the World's Largest Cities. *Cities*, 22 (5), 365-380.
- Murphy, P.D., & Kraidy, M. M. (2003). International communication, ethnography, and the challenge of globalization. *Communication Theory*, 13(3), 304-323.
- Ng, M. (2003). World Cities Or Great Cities? A Comparative Study Of Five Asian Metropolises. *Cities*, 151-165.
- Nissanke, M., & Thorbecke, E. (n.d.). Globalization, Poverty, and Inequality in Latin America: Findings from Case Studies. *World Development*, 797- 802.
- Notar, C. E., & Cole, V. (2010). Literature review organizer. *International Journal of Education*, 2(2), 1-17.
- Otiso, K. M., Derudder, B., Bassens, D., Devriendt, L., & Witlox, F. (2011). Airline connectivity as a measure of the globalization of African cities. *Applied Geography*, 31(2), 609-620.
- Sassen, S. (2013). The global city: New York, London, Tokyo. Princeton, NJ: *Princeton University Press*.
- Shin, S. (2004). Economic Globalization and the Environment in China: A Comparative Case Study of Shenyang and Dalian. *The Journal of Environment & Development*, 263-294.
- Smith, A., & Timberlake, F. (2001). World City Networks and Hierarchies, 1977-1997: An Empirical Analysis of Global Air Travel Links. *American Behavioral Scientist*, 44, 1656-1678.
- Taylor, P.J. (1997). Hierarchical Tendencies Amongst World Cities: a Global Research Proposal. *Cities*, 14 (6), 323-332.
- Uminski, S. (2001). Foreign capital in the privatization process of Poland. *Transnational Corporations*, 10(3), 75-94.
- Van Der Ploeg, F., & Poelhekke, S. (2008). Globalization and the rise of mega-cities in the developing world. *Cambridge Journal of Regions, Economy and Society*, 1(3), 477-501.
- Wong, C. H. -, & McDonogh, G. W. (2001). The mediated metropolis: Anthropological issues in cities and mass communication. *American Anthropologist*, 103(1), 96-111.
- Yacobucci, P., (2012, February). *Introducing the Literature Grid: Helping Undergraduates Consistently Produce Quality Literature Reviews*, presentation at American Political Science Association's Annual Teaching and Learning Conference in Washington, DC.
- Yeung, Y. (2000). *Globalization and Networked Societies: Urban-Regional Change in Pacific Asia*. Honolulu: University of Hawaii Press.

# Methodological approaches for measuring the influence of the creative class, a critical review

G.G.P.M. Gielen, D.H. Venema & K.T. de Visser

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** This paper focuses on the methodology of research papers on creative industry in the field of social-economics. A topic first introduced by Florida (2002), who described the geographical distribution of the creative class in the United States and analysed the relation between the creative class, quality of place, and technology and prosperity. There was much criticism on his methodology, due to the lack of qualitative methods (Cruz & Teixeira, 2013). Since this, the research field has expanded rapidly which led to the adaptation of new methodologies and an emerging divergence in this field due to the lack of a clear overview of relevant literature. The aim of this paper is to create an overview of commonly used methods that research the influence of the creative class on the economy and to identify the similarities, difference, strengths and weaknesses of these methods in order to set up a critical appraisal.

The starting point for this paper is Florida's methodology (2002). The methods addressed in this paper are the methods Florida used, survey and correlation analysis, and two qualitative methods that were identified as missing, the in-depth interview and case study. Therefore the scope of this paper is limited to these four methods. Besides this, the scope is also limited to studies that research the influence (of a sub-group of or) of the creative class on economic development. Deskresearch was used to gather at least five sources per method. These sources were then categorized and organized with the help of a literature grid. With this grid the sources and four methods were analysed, resulting in a theoretical approach and qualitative comparative analysis.

Based on the results which were produced for each method, the conclusion could be drawn that all the articles made use of a mainly practical approach as all involve an element of practice in their methodology. A similarity between the quantitative researches was the appliance of a mixed-method strategy, often supplemented with qualitative methods. Differences however were to be seen in the study area, as qualitative studies allow for smaller areas and tend to focus on certain aspects, and the reproducibility of the research methods, which is considerably higher for quantitative methods, such as correlation analyses and surveys.

**KEYWORDS:** *Creative industry, Richard Florida, Literature review, Creative class, Literature grid*

## 1 INTRODUCTION

The last two decennia there has been an on-going shift in people's choices and attitudes in which the creative ethos is increasingly dominant. Knowledge and information are becoming the driving force behind the economy and are becoming more valuable due to new technologies, industries and wealth flowing from it. Richard Florida describes this shift in his book 'The Rise of the Creative Class' via introducing a new economic class: 'the Creative Class'.

He describes the geographical distribution of the creative class in the United States and analyses the correlation between the creative class, quality of place, and technology and prosperity. In his formulation, knowledge and information are the tools and materials of creativity, thus making creativity the engine of the economy. The core of his hypothesis is that regions where the creative class is prominently present achieve more economic growth and have a higher quality of place than regions where the creative class is less present. Florida's thesis suggests that competition between regions on a global market is increasingly innovation based and not cost based

(Florida, 2002; Florida, 2007). His thesis has created an interest in the relation between innovation and economic development and provides insight in how western economies could potentially compete with low-cost based de-veloping countries via creative industries (Andersen & Lorenzen, 2005).

The methodology used by Florida to research the creative class is derived from his Triple-T notion: technology, talent and tolerance. According to him all three aspects are essential to fostering creative cultures. The Triple-T lays the foundation for four indices that compose the 'Creativity Index', which is formed via register based statistics. This index is to measure the correlation between creativity, quality of place, technology and prosperity, and to comparatively rank the regional economies in the United States (Florida, 2002). Ever since Richard Florida's initial publication on the creative class other researchers have tried to apply Florida's methodology to their own regions and either confirm or refute Florida's hypothesis (Clifton, 2008; Andersen & Lorenzen, 2005). In this attempt, re-searchers became skeptical of Florida's lack of qualitative research methods and question certain correlations Florida made regarding the Creative Class and its impact on the regional economy (Cruz & Teixeira, 2013). As a result, the research field has expanded rapidly which also led to the adaptation of new methods and methodologies. Specifically much progress has been made on the more qualitative and longitudinal approach as this seems to be missing in Florida's original empirical, quantitative methodology (McGrath & Woan, 2005).

The research field for this paper is social-economical and specifically the creative industry as mentioned previously. It is intriguing to see the amount of literature that has been produced on this relatively new topic and for that reason this topic has been chosen. The increasing interest researchers and city strategists seem to have for it ever since Florida published his findings has led to much new methodological research and an array of publications, from theoretical papers to empirical studies. There seems to be an emerging divergence in this field due to a lack of a clear overview of relevant literature. Despite the growing amount of literature on the influence of the creative class, not enough literature has yet been produced on the topic to overcome this fuzziness in the creative industry and the limitations of used methods (Cruz & Teixeira, 2012). This paper attempts to provide guidance out of this fuzzi-

ness and to contribute to the merging of the divergence in the field.

The emphasis of this paper is on the methodologies used to research the influence of the creative industry and not the content itself, which is what discerns itself from other papers. The research question is stated as follows: What are the similarities, differences, strengths and weaknesses of three commonly used methods to determine the influence of the creative industry on the economic development? This leads to the following thesis statement: this paper attempts to create an overview of commonly used methods that research the influence of the creative class on the economy. This is done via a literature grid, to identify the similarities, differences, strengths and weaknesses of those methods in order to set up a critical appraisal. By doing so, this paper could contribute to the merging of the divergence in the field.

Initially this paper was supposed to focus on four methods, two state of the art methods, in-depth interview and case study, and the two original methods used by Florida, correlation analysis and survey. For each of these methods five sources were gathered. Unfortunately throughout the process one student has neglected to produce sufficient work, which means the investigated method has not been analyzed. As a result the scope of this paper is therefore limited to merely three methods, each supported by at least five sources. Besides this, the scope is also limited to studies that research the influence of the creative class to economic development.

The remainder of this paper is constructed as follows. Firstly, the methodology of this paper is explained. The next section provides a concise description of the three (initially four) investigated methods. These methods are reviewed for similarities, differences, strengths and weaknesses. The following part concludes and evaluates the four investigated methods. At last, the paper ends with the acknowledgements and a list of the references, followed by an attachment of the literature grid.

## 2 METHODOLOGY

The following section operationalizes the research statement outlined above around methodological approaches for measuring the influence of the creative class. This paper is a literature review based on qualitative analyses of three methods on the creative in-

dustry with each five exemplary sources. By doing this critical appraisal this paper attempts to compare these three methods by (1) identifying similarities and differences between the methods and its sources, (2) identifying weaknesses and strengths of these methods and (3) thereby creating a clear overview of four methods that research the creative industry.

The research design consisted of deskresearch, forming a literature grid and reviewing the literature. The research focused on three specific methods, namely in-depth interview, case study, correlation analysis and survey. Each method needed at least five exemplary sources to have enough content to be able to draw conclusions for this paper. Deskresearch was used to find sources about the creative class in a cross-section of academic websites. Most of the researches used mix methods, therefore via individual perception and interpretations, the sources were categorized into groups through the use of a literature grid. The reason for choosing a literature grid is to be able to analyse and review relevant literature in an efficient way as it provides an overview via which it is easier to conduct a comparative analysis (Yacobucci, 2012). The literature grid contained general parameters about the articles, such as the name of the author, title, year of publication, research objective, results and gaps. Next to the general parameters, it consisted of more specific parameters about the articles, like used methods, research approach, timeframe, field of research, state of the art, research group, scale and study area. These parameters were chosen via conducting literature research in Yacobucci (2012) and based on personal interpretations and in-sights. Each author was then assigned one method: Johanna van Warners the case study; Dirk Jan Venema the correlation analysis; Guus Gielen the in-depth interview and Kees de Visser the survey. The sources, covering the case studies, examined by Johanna van Warners are included in the literature grid. However, as aforementioned, the method itself has not been analysed. The remaining three methods were reviewed on similarities and difference between sources and strengths and weaknesses of examined methods. Via an inductive approach, the methods were analysed to draw conclusions for the entire field to contribute to the methodological framework of creative industry, resulting in a theoretical approached, qualitative comparative analysis and methodological overview of the analysed methods.

### 3 RESULTS

#### 3.1 *Correlation analysis*

The five subsequent quantitative articles all mentioned the use of correlation analysis and used deskresearch to collect register based statistics. This type of data is excellent to show linkages between variables, but difficult for identifying causality. Clifton (2008) and Lee, Florida and Acs (2004) used regression analysis to supplement their correlation analysis to control if there was multicollinearity between the independent variables. Andersen and Lorenzen (2005) and Clifton (2008) attempted to address the qualitative approach that was missing and used in-depth interviews with local experts to probe observed correlations and asses the relative importance of various indices used in quantitative analyses. Therefore, one could argue this approach differs from the commonly used positivist approach of the other three articles and Florida (2002).

Similarities can be seen in the field of research, study area and target group. All studies focused on social-economics and geographical distribution of creativity. Only Huggins and Clifton (2011) attempted to expand the field and contribute to the development of a city-region policy on creativity. The study area was either Europe or North-America. The methodologies applied to Europe differ slightly from North-America as certain assumptions do not hold true for Europe, such as the gay index. Instead tolerance is indicated as a diversity or openness index (Clifton, 2008; Andersen & Lorenzen, 2005). The target group was the creative class, a subgroup, district or both. The target group is the reason why two articles could be seen as state of the art. Lee, Florida and Acs (2004) targeted the entrepreneurs and attempted to correlate a subgroup to economic growth. Breznitz and Noonan (2013) omitted the social-economic class and focused on the correlation of two districts, universities and art districts, to economic growth.

A remarkable difference is the scale and timeframe that was used. Florida (2002) focused on regions, as due to the emergence of globalization, national boundaries mean less and regions are now the main competitors on a global market (Florida, 2007, p. 158-181). His study was diachronic as this was key to “show relative magnitude of various trends and effects” (Florida, 2002, p. 327). Clifton (2008) and Andersen and Lorenzen (2005) applied

Florida's hypothesis to Europe and used a regional scale to be comparable. Out the five studies, only Andersen and Lorenzen (2005) conducted a diachronic study. A noteworthy exception is Huggins and Clifton (2011) who focused on the urban-rural framework, contrary to the other studies that merely focused on the urban areal. This inclusion of the rural areal could be seen as state of the art and proved creativity is not purely an urban phenomenon.

The quantitative approach of these articles could be seen as successful, as it expanded the knowledge of the research field and conveyed unbiased, accurate information with valid evidence. In fact, the qualitative methods in these five studies didn't seem to add value. The diachronic timeframe, focus on a subgroup or the inclusion of the rural scale could be seen as valuable additions to the research field.

### 3.2 *In-depth interview*

All the following articles are qualitative and used in-depth interviews for their research. The in-depth interviews were all preceded by extensive literature research. All the articles focussed on the influence of the creative class, but used a different perspective. Like Herslund (2011) and Felton, Colli and Graham (2010) focussed on the outer urban and rural areas, Pappalepore, Maitland and Smith (2014) focussed on the influence on tourism. The in-depth interviews were based on interview data ranging from about 30 to 142 key actors and the shorter interviews lasted between 15 - 60 minutes, while the longer ones lasted between one and a half to three hours.

At least three of the articles did the interviews face-to-face and, with the interviewee's permission, recorded this. There is one exception by Florida and Stolarick (2005), where 15% of the interviews were conducted by telephone, but these were only used for quantitative information. The interviewers also took extensive notes on the interview form itself, despite of the fact that the interviews were recorded. The other interviews were at least (semi) structured and used open-ended questioning. During the interview of Florida and Stolarick (2005) two visual aids were shown to each interviewee to answer most of the quantitative questions to put their answer in perspective. The authors coded and transcribed their collected data from the interviews in accordance with accepted procedures. Herslund (2011) indicates they only transcribed the most important parts of the interviews and Atkinson and Easthope (2009) indi-

cate their analysis involved the use of NVivo for transcripts of all the interview material.

Two articles mentioned the number of interviewers used in their research. Pappalepore, Maitland and Smith (2014) indicated that all the interviews were conducted by one consistent interviewer. Florida and Stolarick (2005) used three different interviewers, but highlight they are all well versed. Herslund (2011) did more than just the in-depth interviews. The respondents and their businesses were followed over a three-year period, from 2007 to 2010. Ten respondents were selected for a follow-up telephone interview which lasted about one hour.

Among the articles there are three different target groups to distinguish. As mentioned before one focused on tourists, while the others focused on either policymakers or the creative class. In the case of Borén and Young (2011) they focused on both the policymakers and the creative class. To reassure a considerable diversity in the samples the authors used different approaches depending on their exact field of interest. Pappalepore, Maitland and Smith (2014) interviewed tourists in creative urban areas and therefore approached the interviewees at different times in a variety of locations. Borén and Young (2011) used key gatekeepers, known to the researchers, to introduce suitable candidates. To avoid an overly homogeneous sample, multiple gatekeepers were employed. Herslund (2011) selected their respondents through a network of microbusinesses.

### 3.3 *Survey*

The following articles all mentioned the use of survey data, each showing some similarities and some differences in the way the surveys have been executed. For instance, a noteworthy difference is the timeframe and consequently the scale of the amount of information used in the articles. Whilst some researchers chose to constitute their own survey, therefore mostly small-scale and cross-sectional of nature, others made use of extensive datasets that had already been collected in previous years. The longitudinal research provided a great amount of information, making it possible to create a greater sense of reliability in their research. Gibson et al. (2010) for instance mentioned a postal questionnaire to participants of the creative class resulting in 13 completed questionnaires. Due to the small-scale of the research in those cases, the research is mostly being supplemented with in depth-interviews, changing the

nature of the research from quantitative to qualitative research to some extent. The combination of small-scale survey with in-depth interviews is what gives this research its strength. On the contrary Hansen and Niedomysl (2008) mentioned a large-scale longitudinal approach, making use of collected survey data in collaboration with Statistics Sweden, covering more than 10.000 participants for a period of 14 years.

A second noteworthy aspect is the used approach to carry out the survey. Many articles mentioned the use of a postal questionnaire, which consisted of mostly fixed-questions. Fixed-choice answers allow for a well-structured comparison between the considerations of different groups, but leave little room for discussion and differentiation of answers. In order to ensure a proper filling in of the forms another article even mentioned the use of a questionnaire where people were approached in different locations, even on doorsteps, where the survey undertaker would stand nearby. Although question is to what extent the forms were being filled in properly as they are expected to fill in the survey on the spot. Andersen et al. (2010) used a different approach by making use of focus group interviews with informants in the city regions, where representatives of the creative class as well as other classes were present. The survey consisted of semi-structured interviews by use of the same interview guides in each region adapted to each target group. The strength of this kind of survey is the precise comparison that can be made between the different regions and the different target groups, however focus groups are generally not ideal as participants may influence one another.

A highly elaborate way to gather data has been carried out by Hansen and Niedomysl (2008), as aforementioned, where the postal questionnaire, consisted of 40 open-ended questions, was followed by a transcription of the responses. The responses were coded and finally categorized into six categories, making use of parameters that influence people climate. Moreover, they had provided the research with an experimental test where five coders independently coded 500 randomly selected responses, using a standard reliability measure in content analysis. This altogether avoids the bias that may arise from suggesting specific alternatives due to the use of open-ended questions and establishes good reliability of the data due to experimental testing, something that seems to lack in the other reviewed articles to some extent.

## 4 CONCLUSIONS

For this paper we have researched three methods, correlation analysis, survey and in-depth interview. Our research question was: What are the similarities, differences, strengths and weaknesses of three commonly used methods to determine the influence of the creative industry on the economic development? The aim was to attempt to create an overview of commonly used methods that research the influence of the creative class on the economy. This is done via a literature grid in order to set up a critical appraisal and contribute to the merging of the divergence in the field.

A similarity between the three methods is that each has their niche within the research field of the creative industry and contributes to the expansion of the knowledge of the research field. Within this niche each method can be interpreted and applied in various ways, resulting in a broad range of minor, yet essential deviations for each method.

All researches are practical approaches as all involve an element of practice in their methodology. Most are theoretical in the sense that they attempted to probe whether specific subgroups or districts are of importance to the creativity and/or that they tried to explore the differences in creativity in various cultures. The quantitative approaches attempted to prove a relation between creativity and economic development, whilst the qualitative approaches attempted to address the reasons behind this relation to probe evident observed relations. Therefore, the qualitative analyses were often based on existing quantitative research papers.

A notable difference is the study area of the research methods. The quantitative analyses can study a larger area such as regions, as these are often derived of register-based statistics that cover entire countries. The qualitative analyses are often labour-intensive and tended to focus on a much smaller study area or subgroups of the creative class. These qualitative explorations are an important part of the research field, thus even quantitative analyses attempt to include these in their studies. However, one could argue that this additional qualitative approach does not add much value to their research and the studies that focus on qualitative analyses do a much better job at this.

A similarity between the quantitative research papers is that all of them used a mixed-methods research strategy, often supplemented with qualitative

methods. In most cases of the survey, qualitative methods are used to be able to analyse the data and draw conclusions as the survey is merely applied as a method to collect data. For correlation analyses, additional qualitative methods are used to probe observed correlations, as this type of analysis is a tool to analyse data collected via register-based statistics. The major difference between the quantitative and qualitative research papers is that the qualitative papers tended to draw conclusions by means of only one method. Qualitative research attempts to address individual perception and experiences of participants, which in-depth interviews is more than capable of to achieve on its own without the use of additional quantitative studies. However contrary to the more quantitative methods, in-depth interview relies heavily on the integrity and experience of the researchers as well as the consistency in the structure of the interviews. This doesn't seem the case for the quantitative methods, as the used data and research strategy are more easily reproducible.

## ACKNOWLEDGMENTS

We would like to thank Ana Pereira Roders, Sukanya Krishnamurthy, Anne Marie Peters-van den Heuvel and Daan Lammers for the coordination of the course Research in Urbanism and Architecture. This course gave us the opportunity to write this paper. Moreover the lectures presented by the coordinators were a motivating starting point.

We would also like to thank Sergio Figueiredo, Richard Verbruggen, Husnu Yegenoglu, Astrid Kemperman, Lisanne Havinga, Ad de Bont, Theo Arentze and Jacob Voorthuis for their inspiring lectures.

A special thanks goes to Daan Lammers for personally guiding us through the course and assisting us with writing our paper in the field of Economy in Urbanism and Architecture. It is needless to say the quality of our paper about the methodological approaches for measuring the influence of the creative class has benefited greatly from our consultations with Daan Lammers.

## REFERENCES

Andersen, K.V.; Bugge, M.M.; Hansen, H.K.; Isaksen, A. &

- Raunio, M. (2010). One Size Fits All? Applying the Creative Class Thesis onto a Nordic Context. *European Planning Studies*, 18(10). P. 1591-1609.
- Andersen, K.V. & Lorenzen, M. (2005). *The Geography of the Danish Creative Class: A Mapping and Analysis*. Copenhagen: Imagine Creative Industries Research.
- Atkinson, R. & Easthope, H. (2009). The Consequences of the Creative Class: The Pursuit of Creativity Strategies in Australia's cities. *International Journal of Urban and Regional Research*, 33(1). P. 64-79.
- Borén, T. & Young, C. (2011). The Migration Dynamics of the "Creative Class": Evidence from a Study of Artists in Stockholm, Sweden. *Annals of the Association of American Geographers*, 103(1). P. 195-210.
- Breznitz, S.M. & Noonan, D.S. (2013). Arts Districts, Universities, and the Rise of Digital Media. *The Journal of Technology Transfer*, 39(4). P. 594-615.
- Clifton, N. (2008). The "Creative Class" in the UK: An Initial Analysis. *Geografiska Annaler: Series B, Human Geography*, 90(1). P. 63-82.
- Comunian, R.; Faggian, A. & Cher Li, Q. (2009). Unrewarded Careers in the Creative Class: The Strange Case of Bohemian Graduates. *Papers in Regional Science*, 89(2). P. 389-410.
- Felton, E.; Collis, C.; Graham, P. (2010). Making Connections: Creative Industries Networks in Outer Suburban Locations. *Australian Geographer*, 41(1). P. 57-70.
- Florida, R. (2002). *The Rise of the Creative Class*. New York, USA: Basic Books.
- Florida, R. & Stolarick, K. (2005). Creativity, Connections and Innovation: a Study of Linkages in the Montréal Region. *Environment and Planning A*, 2006(38). P. 1799-1817.
- Florida, R. (2007). *The Flight of the Creative Class*. New York, USA: Harper, 5 Collins Publishers.
- Gibson, C; Luckman, S & Willoughby-Smith, J. (2010). Creativity without borders? Rethinking remoteness and proximity. *Australian Geographer*, 41(1), P. 25-38.
- Hansen, H.K. & Niedomysl, T. (2008). Migration of the Creative Class: Evidence from Sweden. *Journal of Economic Geography*, 2009(9). P. 191-206.
- Heerden van, S. & Bontje M. (2013). What about Culture for The Ordinary Workforce? A Study on the Locational Preferences of the Creative Class in Prenzlauer Berg, Berlin. *Journal of Urban Affairs*, 36(3). P. 465-481.
- Herslund, L. (2011). The Rural Creative Class: Counterurbanisation and Entrepreneurship in the Danish Countryside. *Sociologia Ruralis*, 52(2). P. 235-255.
- Huggins, R. & Clifton, N. (2011). Competitiveness, Creativity, and Place-based Development. *Environment and Planning*, 2011(43). P. 1341-1362.
- Lee, S.Y.; Florida, R. & Acs, Z. (2004). Creativity and Entrepreneurship: A Regional Analysis of New Firm Formation. *Regional Studies*, 38(8). P. 879-891.
- Markusen, A. & Schrock, G. (2006). The Artistic Dividend: Urban Artistic Specialization and Economic Development Implications. *Urban Studies*, 43(10). P. 1661-1681.
- McGranahan, D. & Wojan, T. (2005). Recasting the Creative Class to Examine Growth Processes in Rural and Urban counties. *Regional Studies*, 41(2). P. 197-216.
- Pappaleore, I.; Maitland, R. & Smith, A. (2014). Prosuming

Creative Urban Areas. Evidence from East London. *Annals of Tourism Research*, 2014(44). P. 227-240.

# The Economic Interaction between Informal and Formal Sectors

Nuijten, C. Choi, K. Jansen, Z.J. van Steenberg, M. Hens, D.

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** The informal sector is a concealed portion of the economy due to the fact that it is not officially registered and non-regulated. Thus considering this characteristic, one can assume that qualitative research methods, compared to quantitative research methods, can be more suitable to examine this informal sector and understand the relationship it has to the formal economy. However, depending on the objective of the research, quantitative measurements are also valuable in illustrating certain aspects of the informal sector and its economic interaction with the formal sector. Then what are the benefits and limits of different research methods, and how can they be combined to examine the interaction between the two economies?

This paper uses a literature grid to investigate how different research methods are effective in examining particular economic interactions between the two sectors. Five methods are used to elaborate on the issue. The first method is based on anthropological fieldwork in the form of participant observation which collects data from primary sources. The second method is a form of comparing case studies which gains data from secondary sources. The third is a way of collecting data via surveys which provide the basis for other researches and the fourth method concerns empirical research that focusses on the way the empirical data is analyzed by using models to prove a certain perspective. Finally, the fifth method focuses on mapping which collects data and illustrates it in a visual format.

In regard to the complexity driven out by divergent methods and numerous literatures, a literature grid is applied to summarize and clarify the essential aspects of each reference. The subsections of the literature grid are arranged to have a clear overview and understanding of the problem field, objective, methods applied, benefits and limits of each references. Subsequently, this research elaborates on the contents drawn out by the five different methods and analyzes the effectiveness of each of these methods through a comparison.

**KEYWORDS:** *Informal sector, Informal economy, Economic interaction, Research methods*

## 1 INTRODUCTION

The field of economy can be characterized as a field with an infinite number of regulations and observations of those regulations. If an entrepreneur wants to make an investment in his company, but the resources are unavailable, one can apply for a loan. The bank will screen the applicant for reliability through a number of variables. If the loan would be granted, a multitude of forms will need to be signed and as a result the entrepreneur will be connected in the formal economic network.

As an alternative, the entrepreneur could turn to his close acquaintances or family in acquiring the re-

sources needed for his investment. An oral agreement could be made without connecting to the formal economic network. Thus, this alternative would be considered as a form of informal economy.

In this example of the entrepreneur with the need of a loan, one has the choice between a formal and an informal way in obtaining this credit. Another option is to lend both from the formal and informal sector. The word sector relates to the bank in the formal course, and to relatives and friends in the informal one. This example about credit is of course one out of many in describing the interaction between the formal and informal economy. What is interesting in this manner, is that there is a tension between these two concepts, which is different in the multitude of related subjects. For instance, a restaurant registered

in the formal economy could at the same time be engaged in the informal economy regarding the registration of tips given by the customers.

Existing research done by Jain (1998) addresses the interaction between the formal and informal credit sector. According to survey data used by Jain (1998), developing areas show that entrepreneurs borrow both from the formal as from the informal credit sector. The author goes on to speculate that these sectors anticipate on this behavior. In addition to this interaction between the formal and informal economy, Pradhan et al. (1993) investigate the relation between the formal and informal labor markets in cities of Bolivia. In this research, Pradhan et al. (1993) indicate that informal labor in Bolivia is more profitable than formal labor using existing survey data. On a smaller scale, Bromley (1978) describes a conflict between an informal vendor who sells his merchandise and a neighboring store that sells the same products. Using participant research as method, Bromley (1978) discusses this unequal situation between the formal and informal circuit.

Because these researches use different methods to investigate this interaction, there seems to be unclarity about which methods are the most adequate measuring tools. In order to understand which method answers best to this question of measurement, the concept of the informal economy needs to be elucidated.

The informal sector is a concealed portion of the economy due to the fact that it is not officially registered and non-regulated (Reference needed). This particular economic unit exists in various portions and plays a crucial role especially in transitional economies (Reference needed). However, due to the fact that it is a part of the economy that is non-registered to the government, several difficulties arise when attempting to examine this sector, such as the actual size, the income of wage earners and the determinants of an individual decision when choosing a job between informal and formal works.

Thus, it seems that qualitative research methods, compared to quantitative research methods, can be more suitable to examine the informal sector and understand the relationship it has to the formal sector. However, depending on the objectiveness of the research, quantitative measures are also valuable in illustrating certain aspects of the informal sector and its economic interactions with the formal sector. Then what are the benefits and limits of different research methods, and how can they be combined to

examine the interaction between the two economies? Therefore, the main focus of this paper is to analyze the benefits and limits of five different research methods to issue the effectiveness of each of those methods regarding the central topic.

The paper is structured as follows. The next section illustrates the methodology for the literature review, using the literature grid to examine the effectiveness of different research methods in investigating the interaction between the informal and formal sectors. The result section describes the results driven out from the literature grid and compares the outcomes to explain the relative effectiveness of each method. In the final section, a brief summary of the paper is provided with conclusions based on the consulted evidence.

## 2 METHODOLOGY

To examine the hypothesis - qualitative research is most suitable to do research on economic interactions between the formal and informal sectors - five research methods are selected. These methods are selected on a range from solely quantitative to completely qualitative methods, with some mixed methods in between.

In order to obtain a clear overview on what method is most suitable to answer certain questions within the main topic, a literature review on 25 papers is done to examine the chosen methods in their practical context. Each paper is analyzed critically on their research question and how it is capable in obtaining an answer with its specific method.

The literature grid used for this paper is based on Yacobucci (2012) his theory about this methodology as follows. The literature review is summarized in a literature grid, in order to organize and structure the gathered information in an accessible manner. The advantage of using this grid is that it clearly points out, for each individual paper, what kind of data is collected by which method. Furthermore, it reveals what kinds of methods are suitable to answer specific types of questions within the main topic. Considered in the context of the whole grid, this will eventually reveal a general trend in what method is most suitable to gather data for specific subsections of the main topic.

To organize the gathered information from the literature review in a way that reveals those trends, a carefully crafted division is made by defining a

number of sub-sections. First of all, the grid divides each paper amongst the chosen methods (survey, case study comparison, empirical research, mapping and participant observation). From there on, they are individually encoded with their paper-specific characteristics, ordered in the previously mentioned sub-sections. The sub-sections cover a brief summary of the 'Main findings' of the paper, the 'Aims and objectives' of the paper, the 'Data collection methods' used, the 'Data analysis methods' used, the 'Methodological benefits' and finally the 'Methodological limitations'.

Since the economical interaction between formal and informal sectors covers a broad field of subtopics, for instance cash-flows, regulations or the social acceptance of these systems, the grid is expanded by one more column: Types of Economic Interaction. Based on the labels 'Problem field' and the 'Aims and objectives', the specific aspects of the economic interaction between the two sectors are summarized into this column. Though the labels, 'Benefits of the method' and 'Limits of the method', describe in depth the effectiveness of the method, it is challenging to compare the literatures since each reference differs in detailed, specific subtopics. Thus the intention of the label 'Types of Economic Interaction', is to provide the basis for qualifying which methods are useful in investigating different subtopics that cover the main research question.

Based on the results revealed by the literature grid, the advantages and limitations of each method in relation to the main research question are discussed individually. Consequently, these advantages and limitations are compared with each other, resulting in a conclusion about the applicability of each method relating to the main topic. Finally, this will enable the hypothesis to be tested and moreover, it will elucidate on how different methods can be combined in understanding the economic interaction between the informal and formal sectors.

### 3 RESULTS

#### 3.1 Participant Observation

Participant observation supports several other types of qualitative researches. It rarely stands alone as an isolated research method, in which semi- or non-structured interviewing, descriptive mapping of researched areas or questionnaires form very strong

links with this kind of research. It can describe a holistic economic situation in which the subject is researched as objectively as possible, but it can also be an approach to a focused discussion of a particular aspect of the case. Therefore, it can describe which marginal position individuals take in a specific economical sector and how they cope with this position. The researched subject is always influenced by the presence of the researcher which results in subjective output. The qualitative method is always a part of an ethnographic field research, done by an anthropologist. This suggests that the data gained from interaction between a formal and informal economy forms a socio-economic part of a more cultural and social research. Therefore it describes mostly an economic interaction of individuals within a sector of the economic situation.

The method is limited in its sample size and is defined as a long-term research type, which can question the assumptions made by earlier research on the linkage between informal and formal economies because of a contextual change through time. Therefore it enhances the quality of the data. Secondly, it enhances the quality of the interpretation of the data. In other words, this method examines already done research, and develops research, thus it can act like an analytical and as a collection tool.

#### 3.2 Case study comparison

Case study comparison uses datasets from multiple case studies, which are usually qualitative, but can be quantitative or mixed as well. Since divergent data types can be used, case study comparison can be considered as a relatively flexible method. For example, it can be used to monitor cash flows between the formal and informal sectors in a numerical manner, but it can also be used to describe the social and political acceptance of informal transactions between different countries.

The case study method in general, is capable of collecting lots of detail, which might be hard to obtain with other methods. Therefore, it is a particular useful tool to gain rich and in depth information on exceptional, rare or relatively unstudied phenomena, like in this case: the economic interaction between formal and informal sectors.

Single case studies have a reputation for having difficulties in drawing definite conclusions between causes and effects, and are often considered unreliable to be used for generalization. The comparative

case study method uses multiple similar cases and combines them to gain new insights. Because of this, it is capable of discovering trends and contrasts between these different cases, which would otherwise remain hidden or get (to) easily generalized.

The cases used in this method must always align with each other, the data has to be comparable. Therefore, the scope of this method is limited to the availability of comparable case studies. Since this is not a generously studied field, it might be hard to find sufficient sources that cover comparable cases. Doing new studies on the contrary, might be extremely time consuming.

### 3.3 Survey

In the interaction between the informal and formal economy, survey provides a great amount of data on the numerous types of interaction. It is not uncommon that a country has a national bureau of statistics that conducts surveys and allows access to this data. In the research of Pradhan et al. (1993) they use the second round of the Bolivian household survey from 1989 as administered yearly by the Bolivian national bureau of statistics. Furthermore, surveys are executed by researchers, to provide data about for instance credit markets, both in the formal as in the informal sector.

The collected data functions as objective input to make assumptions about the connection between the informal and formal economy using models, equations and textual interpretation. Furthermore survey data contributes in the stimulation of doing further qualitative research, since it provides static data about specific characteristics.

Exactly that, being able to describe specific characteristics about a topic is the strength of the survey method in collecting data. A disadvantage is that the validity of this data is questionable, since the respondents have the ability to answer subjectively. This is especially the case when investigating the informal economy. Evasive responses are to be expected when questioning about informal loans or earnings.

Thus, survey is a method that requires caution on the part of the researcher. Its quality can be enhanced by combining with a qualitative method.

### 3.4 Empirical Research

Empirical research in general, obtains quantitative data through literature or preceded surveys, and analyzes this data through models to prove or criticize a theory. However, the structural order between the data description phase and the model based analytical phase, differs within the five references. In some cases, a model is developed prior to a data description, whereas in other cases the data is presented first to emphasize the author's viewpoint. Despite the difference in structure, the analytical phase requires multiple assumptions and interpretation of the research conductor. This implies that the reviewed empirical researches are a combination of both quantitative and qualitative measures.

The quantitative aspect of this methodology provides a precise measurement and observation of the actual conditions of the informal sector. This can be seen in the research of Barkley Rosser, Rosser & Ahmed (2008), where it has obtained data on Gini Coefficients for 16 countries from a literature reference (Johnson et al. 1997) to verify the relationship between the level of income inequality and the relative size of the informal sector. This is valuable in a way that the research reflects upon reality and therefore represents a sufficient level of validity. On the contrary, the gained data is interpreted in a logical but subjective manner through equations to frame the analysis towards the author's intention, which may lack of reliability. In regards to this dual-aspect, empirical research is effective in precisely measuring the relative size, and in understanding the mechanism between the informal and formal sectors.

### 3.5 Mapping

Informal sectors can be considered as black holes in an urban cadaster because they lack a framework showing what the area comprises. A way to identify the economic interaction between the formal and informal sector can be 'mapping'. This method can be used to create a linkage between the formal and the informal sectors. The data collection can be a community-driven process in which information is gathered by means of a survey, or statistical data collected from institutions in both sectors. The different data sets can be linked to each other allowing information to become manageable. Therefore, the identification of economic interrelations between the two sectors will become clear in a rational framework. Mapping is a tool to change the perception of the

different sectors. It can be a way to understand the dynamics of an area and thus, have a better understanding as to what kind of interventions have to be done. Mapping can be used on different scales. On one hand it can outline very specific themes on a settlement level, but it can also comprise of a study on a metropolitan scale. A limitation to this could be that the information gathered from maps, which entails a big research area, is too general and thus less useful for local interventions.

### 3.6 Result Comparison

Case study comparison can be effective in gaining rich and in depth information on a certain topic. This can be very helpful in order to generate valid questions. These questions can be used in enhancing the validity of a survey or in the development of a model in empirical research. A problem with case study comparison is that comparable cases have to be cross-referenced in order to generate valid arguments. Therefore, only widely studied fields have sufficient sources to conduct this type of research. This is where the benefits of participant observation become important. In order to generate enough cases on a certain topic, ethnographic field research is required. Even though it is limited in its sample size, it can be a very effective method to generate sufficient cases on the economic interrelation between the formal and informal sector. By doing this, cases can be combined and compared. This enables a researcher in formulating the right questions. In other words, by observing samples and comparing them, relevant questions can be raised.

The questions raised with the participant observation method and the comparison of these cases can be comprised into a questionnaire. While the survey method is merely a method for collecting quantitative information about items in a certain sample, it is used with a high frequency. As a method it is not interactive. The data collected from the survey in combination with literature studies can be used in empirical research. Empirical research is effective in analyzing data through models to prove or criticize a theory. In that case, a survey can become very important. This is because the assumptions and hypotheses of an empirical research are highly dependent on surveys and the case studies that preceded them. In order to generate the biggest validity in empirical models the questions formulated in a survey need to be optimized. While the survey method

mainly focusses on precisely measuring a certain question and empirical research uses this data to generate mathematical equations and models, the other methods are more flexible in combining quantitative and qualitative elements.

Combining case studies provide relevant questions that can be comprised into a survey. The data gained from surveys can be theorized through equations and models in empirical research. The final result can be structured into a rational framework. This manageable format can be gained from mapping. When combining different elements using different primary and secondary methods, mapping becomes very important. To complete the methodology, mapping can be a tool to change the perception on the economic interaction between the informal and formal sector. Mapping can be a way to point out and understand the dynamics of the question, and will give a better understanding as to what kind of answers can be given.

## 4 CONCLUSION

The analysis conducted through a literature grid has revealed multiple aspects of the informal economy such as the applied regulations, policies, cash flows, credit market, determinants for employment decision and overlapping labor market conditions between the informal and formal sectors. However, a crucial difficulty was noticed in the phase of comparing the methods. Despite the fact that each literature reference relates to the informal sector, the detailed types of economic interaction between the informal and formal economies were not exactly the same. Nonetheless, in terms of variety this has provided an understanding of the overall situation surrounding the informal economy. Moreover, it is possible to notice, in regard to the characteristics of each method, which are defined by the analyzed benefits and limits, that each method covers different aspects of the economic interaction between the informal and formal sectors. This implies that a research methodology for investigating the informal and formal economic interaction should be structured in a way that it consists of mixed methods.

The research of this paper started with an expectation that the identified limits of a certain research method can be addressed by combining it with an additional method. In other words, the hypothesis of assuming that a qualitative method can be beneficial

in examining the informal economy and its relation to the formal economy has been revealed to be true to a certain extent: In general, qualitative measures require either a process to quantify the observation or support by empirical evidence. Thus, this responds to the research question by arriving to a conclusion that a combination of methods would be preferred over using a singular method.

Participant observation as a qualitative research method was effective in observing and recording the dynamic status of the informal economy since the research conductors have to stay in an environment for a certain period of time. Perlman (1979) had conducted an observation over a six month period in each favela. This is meaningful in terms of data currency and in contrast to surveys which produce solely static data. Participant observation also can be useful in formulating a research issue that is regardless of quantified evidence.

However empirical research, as a mix of quantitative and qualitative methods, has shown concrete evidence (mostly data collected by preceded surveys) and also strong arguments (models built upon the author's logic and assumptions) about the economic interaction between the two sectors. For instance, one empirical study counterapproaches the dualistic view of labor markets, and attempts to prove that the labor markets are not segmented and rather interactive between the informal and formal sectors (Amaral & Quintin, 2005). The research method is effective in a way that it states a specific economic interaction with objective evidence to support it.

As a compromise among the five research methods taken into account, a suggestion for a possible research methodology can be proposed: A research question can be formulated through participant observation which then can be specified into one or more case studies. If several case studies have been achieved, the studies can be compared to spot tendencies and trends about a specific topic. To provide concrete proof for the identified trends, a survey or mapping can be conducted to quantify these matters into empirical data. With the obtained data, an empirical research can be conducted to perform an analysis towards establishing a specific theory.

## ACKNOWLEDGEMENTS

We would like to use this opportunity to express our gratitude to everyone who supported us in the writ-

ing of this paper. We are thankful for their aspiring guidance, invaluable constructive criticism and their caring advice during the course of this challenging assignment. We are sincerely grateful to them for sharing their truthful and illuminating views on the topics we discussed.

We express our warm thanks to A. Pereira Roders, D.G.O. Lammers, S. Krishnamurthy and A. Peters van den Heuvel for their instructive support and advice.

We would also like to thank S. Figueredo, R. Verbruggen, H. Yegenoglu, A. Kemperman, L. Havvinga, A. de Bont, T. Arentze and J. Voorthuis for their enlightening guest lectures.

## REFERENCES

- Abbott J. (2001), *Use of spatial data to support the integration of informal settlements into the formal city*. Department of Civil Engineering, University of Cape Town, Republic of South Africa. Abstract retrieved December 3 2014 from <http://www.sciencedirect.com/science/article/pii/S0303243401850339>
- Amaral, P. Quintin, E. (2005). A Competitive Model of the Informal Sector. *Journal of Monetary Economics* 53, 1541–1553, [www.elsevier.com/locate/jme](http://www.elsevier.com/locate/jme)
- Amaral, P. (2006). A competitive model of the informal sector. *Journal of Monetary Economics*, 1541–1553. doi:10.1016/j.jmoneco.2005.07.
- Azid T. (2011). *Impact of interaction of formal and informal institutions on economic growth and development in the framework of islamic economics*. Paper presented on 8th International Conference on Islamic Economics and Finance. Retrieved December 2, 2014, from <http://conference.qfis.edu.qa/app/media/307>
- Barkley Rosser, J. Rosser, M. Ahmed, E. (2008). Income Inequality and the Informal Economy in Transition Economies. *Journal of Comparative Economics* 28, 156–171, doi:10.1006/jcec.2000.1645.
- Barton B. (2004). *Informal Legal Systems in Latin America*. Paper presented on Institute of Latin American Studies Student Association Conference, University of Texas, USA. Abstract retrieved December 3, 2014 from <http://lanic.utexas.edu/project/etext/llilas/ilassa/2004/barton.pdf>
- Baud I. Sridharan N. Pfeffer K. (2008). Mapping Urban Poverty for Local Governance in an Indian Mega-City: The Case of Delhi. *Urban Studies Journal Foundation*, University of Amsterdam, Amsterdam. Abstract retrieved November 30, 2014 from <http://usj.sagepub.com/content/45/7/1385>
- Brillembourg A., Feireiss K., Klumpner H. (2005) *'Informal City: Caracas Case'*, Prestel Verlag, Munich, Berlin, London, New York
- Bromley, R. (1978). Organization, Regulation and Exploitation in the So-Called 'Urban Informal Sector': The Street Traders of Cali, Colombia. *World Development*, 6(9/10), 1161-1171. Retrieved December 14, 2014, from

- <http://www.sciencedirect.com/science/article/pii/S0305750X78900700>
- Daniels, P. (2004). Urban Challenges: The formal and informal economies in mega-cities. *Cities*, 21(6), 501-511. Retrieved December 12, 2014, from <http://www.sciencedirect.com/science/article/pii/S0264275104000940>
- Feige, E. (1990). Defining and Estimating underground and in formal economies: The new institutional economics approach. *World Development*, 18(7), 989-1002-989-1002. Retrieved December 8, 2014, from <http://www.sciencedirect.com/science/article/pii/S0305750X90900818>
- Freeman, D. (1991). *A City of Farmers: Informal Urban Agriculture in the Open Spaces of Nairobi, Kenya*. Quebec, Canada: McGill-Queen's University Press
- Hasan A. (2006). *Orangi Pilot Project: the expansion of work beyond Orangi and the mapping of informal settlements and infrastructure*. International Institute for Environment and Development, NED University, Karachi, Pakistan. Abstract retrieved December 2 2014 from <http://eau.sagepub.com/content/18/2/451>
- Husmanns R. (2004), 'Measuring the informal economy: From employment in the informal sector to informal employment', Policy Integration Department, Bureau of Statistics, International Labour Office, Geneva
- Jain, S. (1999). Symbiosis vs. crowding-out: The interaction of formal and informal credit markets in developing countries. *Journal of Development Economics*, 59(2), 419-444-419-444. Retrieved December 12, 2014, from <http://www.sciencedirect.com/science/article/pii/S030438789900019X>
- Jinling, L., Qingwei, L., & Yanxi, L. (2011). The Effects of Guanxi Categories on Bank Credit. In *Applied Informatics and Communication* (1865-0929 ed., Vol. 226, pp. 160-166). Dalian: Springer Berlin Heidelberg.
- Karanja I. (2010). An enumeration and mapping of informal settlements in Kisumu, Kenya, implemented by their inhabitants. *International Institute for Environment and Development*, Nairobi, Kenya. Abstract retrieved December 3 2014 from <http://eau.sagepub.com/content/22/1/217>
- Meng, X. (2001). The Informal Sector and Rural-Urban Migration – A Chinese Case Study. *Asian Economic Journal*, 15(1), 71-89.
- Nakanishi, T. (1990). The Market in the Urban Informal Sector: A Case Study in Metro Manila, The Philippines. *The Developing Economies*, 28(3). Retrieved December 18, 2014, from <http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1049.1990.tb00185.x/abstract>
- Nugent, R. (2000). *The impact of Urban Agriculture on the Household and Local Economies*. Retrieved November 29, 2014, from <http://wentfishing.net/farmlit/Theme3.pdf>
- Pejovich, S. (1999). The Effects of the Interaction of Formal and Informal Institutions on Social Stability and Economic Development. *Journal of Markets & Morality*, No. 2(Fall 1999), 164-181. Retrieved November 17, 2014, from <http://www.marketsandmorality.com/index.php/mandm/article/download/624/614&ei=GSO5VKOOJsnpaMvlgPAN&usg=AFQjCNHjeNZjHyajrSvkeFgXkmE6P541UA&sig2=Ppd e8vBjQ-JpnclJaF-DLg&bvm=bv.83829542,d.d2s>
- Perlman, J. (1979). *Research and Methodology*. In *The Myth of Marginality: Urban Poverty and Politics in Rio de Janeiro* (pp. 263 - 279). Chicago: University of California Press.
- Pradhan, M. van Soest A. (1993), 'Formal and informal sector employment in urban areas of Bolivia', Elsevier
- Pradhan, M. (1995). Formal and informal sector employment in urban areas of Bolivia. *Labour Economics*, 2(3), 275-297-275-297. Retrieved December 19, 2014, from <http://www.sciencedirect.com/science/article/pii/S092753719580032S>
- Rakodi, C. (2004). *Land for housing in African cities: Are in formal delivery systems institutionally robust and pro-poor?* Paper presented to Expert Group Meeting on Secure Land Tenure. Retrieved December 3, 2014, from [https://www.fig.net/commission7/nairobi\\_2004/papers/ts\\_02\\_3\\_rakodi.pdf](https://www.fig.net/commission7/nairobi_2004/papers/ts_02_3_rakodi.pdf)
- Teilhut-Waldorf, S., & Waldorf, W. (1983). Earnings of Self-Employed in an informal Sector: A case study of Bangkok. *Economic Development and Cultural Change*, 31(3), 587-607. Retrieved December 9, 2014, from <http://www.jstor.org/discover/10.2307/1153215?sid=21105086576061&uid=70&uid=4&uid=3738736&uid=2129&uid=2>
- Wells, J. (2010). *Construction and capital formation in less developed economies: unraveling the informal sector in an African city*. London, Great Britain: Routledge
- Yacobucci, P. (2012). *Introducing the Literature Grid: Helping Undergraduates Consistently Produce Quality Literature Reviews*. APSA 2012 Teaching & Learning Conference Paper.

**Session 4: Environment**

# Researching methods regarding the reuse and recycling of building materials

P.F.H. van Hout, J.C.M. de Jong, A. Karimi, T. van Lanen & F.R. Verbeek

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Simultaneously with the increased attention for sustainability in the built environment, the interest in the re-use and recycling of building materials increases. At this moment, no universal standards for reused and re-cycled materials are present. Due to this fact, dozens of methods are used to discuss these topics. In this re-search, the strengths and weaknesses of the five most common research methods for the topic of reusing and recycling building materials are analyzed and compared. The research methods are categorized in the following groups: Case study, Inventory Analysis, Survey, Laboratory analysis and Data analysis. The comparison of the articles and the methods resulted in an overview that forms a foundation for future research into reuse and recycling. The research pointed out that the different methods described different areas of the re-use and recycling topic. Choosing the right method is vital to obtain valid results in an efficient way. It is important to find the weaknesses of the applied method in an early stage, which allows you to fill this gap by applying an extra research method.

**KEYWORDS:** *Research methods, Reuse, Recycle, Sustainability, Environment*

## 1 INTRODUCTION

### 1.1 Introduction

Sustainability is a term abundantly present in the building sector. Sustainability however is a broad term, concerning multiple aspects within the built environment. The building sector in the Netherlands is responsible for 35% of all the waste. When looking at the waste levels that become landfill or go to waste incineration, the building sector is responsible for only 15% of the total. The difference in these two numbers is the result of the reuse and recycling of building materials. The building sector is responsible for 20% of all energy used in the Netherlands, including the energy consumption of the user of the building. The energy used for building and demolishing is just 4.5% of the total energy use. The building sector is also responsible for 5% of the total emissions. These numbers about the environmental impact in the Netherlands are based on the research report: *Meten is weten in de Nederlandse bouw*, M.M. Bijleveld 2014

(Measuring is knowing in the Dutch building industry).

The equation  $I = PAT$  (Ehrlich and Mooney, 1983) (I=Environmental Impact P=Population A=Affluence T=Technology) indicates that to reduce the environmental impact technological improvement can be used. For example when you can produce the same amount of products with less energy it is a technological improvement. Another factor is Affluence, which stands for the average consumption of one person. This factor is of importance for the environment due to the fact that when the average consumption of people decreases, the Environmental impact reduces. The third factor present is the amount of people (population), which is relevant because a smaller population consumes less, which results in a lower production rate and a lower environmental impact.

Technology to reuse and recycle products can help to reduce the environmental impact of the building sector. This manifests itself on the one hand by preventing energy waste in the used materials and on the other hand by using the current building stock as a source for new materials (M. Braungart and W. McDonough 2002).

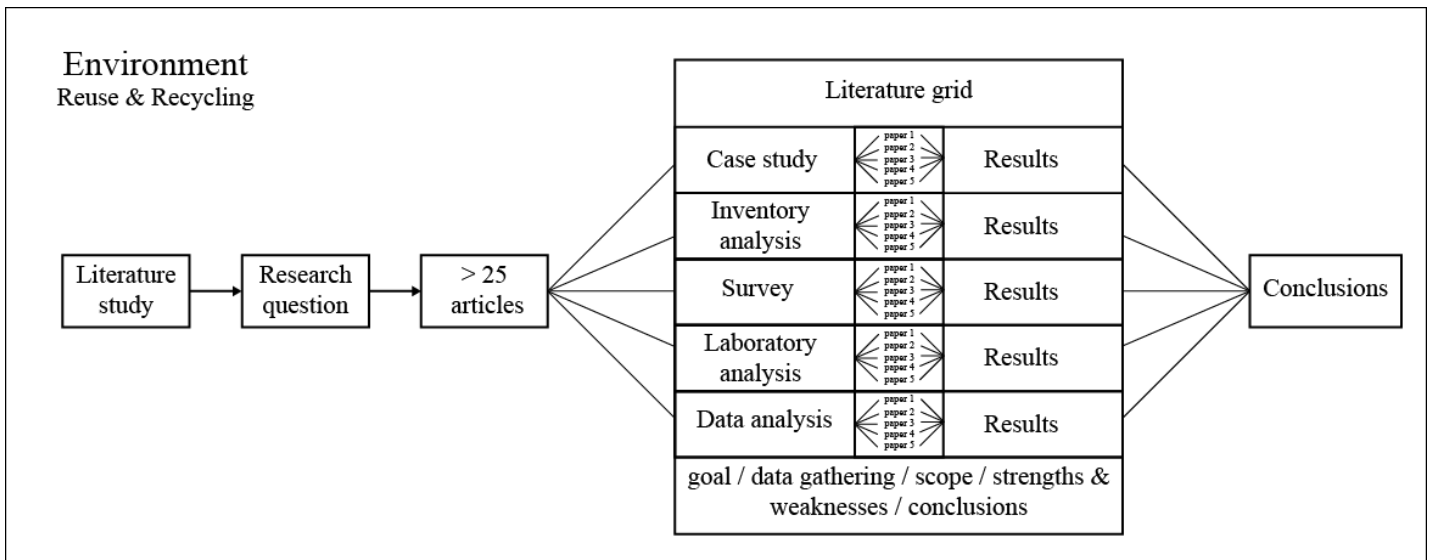


Figure 1. Framework

### 1.2 Goal

Recycling and reusing building materials is relatively new in the built environment, which is one of the reasons for the absence of measurement standards. The topic consists out of many different variables, making it hard to bound universal standards. For this reason, scientific research papers regarding sustainability are using methods, which are the most suitable for their specific research on the topic of material recycling and reuse.

The aim of this paper is to consultate in improving efficiency in research methodology into material recycling and reuse. In this research, the five most commonly used research methods regarding this topic are analyzed and compared on their strengths and weaknesses, resulting in a guidance which will help researchers to use the right method, resulting in more reliable and efficient results.

## 2 RESEARCH METHODOLOGY

### 2.1 Method

To gain insight in the present research methods regards this topic, a desk study was conducted. Numerous researches papers containing different methodologies were found and categorized based on the research method used in the paper. Five research categories were derived out of these papers, each containing the five most suitable articles.

The research categories with their articles were divided among the researchers who analyzed the five articles on their applied methodology. The research-

ers summarized these articles in a literature grid, making the different researches comparable. The articles are analyzed according to the following topics: problem field, data gathering, relevance / history, scope/limitations, purpose, strengths and weaknesses, findings/conclusions.

With this information a discussion about the literature was executed and followed by an exploration of the different methodologies present in the literature. The outcome gave an indication of why a particular research design was used for investigating the specific topic. By comparing the articles belonging to the same method, conclusions were found about the specific research method. In a later stage the different research methodologies will be compared on their strengths and weaknesses, which will result in a discussion about the research methods regarding the reuse or recycling of building materials.

### 2.2 Scope and limitations

Five categories were established based on the research methods present in the articles that were found in relation to the reuse and recycling of building materials. These methods are: inventory analysis, case studies, data analysis, surveys and laboratory research. However multiple research methods might be present in one article, the article is categorized based on its main research method.

Case study	A method in which a limited amount of corresponding samples are analyzed and compared with each other.
Inventory analysis	A method in which different situations of a single-embedded case study are compared.
Data analysis	A method using existing data from secondary sources.
Survey	A method using predefined questions to obtain quantitative information about thoughts, opinions and feelings in a population.
Laboratory analysis	A method in which the researcher manipulates one or more variables to measure and control any change in other variables.

Table 1. Definition of the methodologies

### 3 RESULTS

#### 3.1 Case study

The case study is a popular research method, concerning the field of clinical psychology. There are many definitions explaining the case study. The one that suits the technical background of this research is: ‘The case study is a research approach, situated between concrete data gathering techniques and methodological paradigms’ (Lammek S., 2005).

Case studies can be carried out with single and multiple cases. However all the papers we have analyzed, dealing with case studies, applied the multiple case variant. Multiple cases in real-life context are preferred to generate comparable results. Case studies lend themselves to both generating and testing hypotheses (Flyvbjerg B., 2006). The case studies approach is often combined with other research methods like qualitative research.

Case studies can be used to put a new developed method or concept to the test. When the new method or concept has to be applicable for all building types, the researchers often choose the most common building types (cases). Different cases are necessary in order to compare the result. The conclusion based on this approach are often clear and explicit. For example: ‘On the energy consumption of building materials in all case-study houses can be saved at least 10% (Gao W., 2000)’.

If the case study is not longitudinal and covers the entire research, the main question should

be definitive. In this research a certain phenomenon is being explored in a real life scenario.

#### 3.2 Inventory analysis

Instead of comparing different cases with each other, the Inventory Analysis provides researchers with a tool to compare different situations within a single specific case. Looking at the inventory of a single case allows the researcher to obtain detailed results concerning the case.

Comparing different options for a single case and analyzing the effects of these different variants may result in realizing the optimal building. Both Saghafi (2011) and Pongiglione (2014) make such a comparison resulting in conclusions accompanied by recommendations for the building sector.

However detailed conclusions about the specific case can be made, it is found that it is hardly possible to bound universal conclusions about the topic due to the specific circumstances of the case. Although the same subject is being analyzed, the circumstances of a case study of a student building in the Negev desert in Israel (Huberman N., 2007), where the climate and long distances for transportation influence the results significantly, are hard to compare with the results of the case study of a 3-bed room semi-detached house in Scotland (Asif M., 2007), with a completely other climate and good transportation facilities.

In Inventory Analysis the Life Cycle Assessments (LCA) of the case is a research method often used regarding the topic of the reuse and recycling of building materials. However the weighting in LCA is based on value judgments, different weighting methods can give different results. One limitation is that the choices and assumptions made in LCA regarding e.g. system boundaries, data sources and impact categories may be subjective. Also, the accuracy of LCA studies may be limited by accessibility of relevant data and data quality (Thomark C., 2000).

#### 3.3 Laboratory analysis

The Laboratory Analysis method is based on testing different assumptions (hypotheses) by trial and error under conditions constructed and controlled by the researcher. During the experiment, one or more conditions (independent variables) are allowed to change in an organized manner and the effects of these changes on associated conditions (dependent variables) is measured, recorded, validated, and analyzed for arriving at a conclusion.

A solid preparation of a laboratory based research is essential for reliable outcomes. To achieve these reliability's the collecting and organization of empirical facts is necessary. In the organizational phase the empirical gained information can lead to conclusions to determine the scope of the experiment. In the 'Use of selected waste materials in concrete mixes' (Batayneh M.,2007) the building construction waste management is analyzed to gain more information about construction wastes on site. With this organized research the materials are determined for the research.

In the induction phase, the gained information will formulate a hypotheses. The hypotheses will lead to the deduction phase where methods and materials are considered. Important in this phase is to consider the right independent variables to change in corresponding conditions. But also the reliability of the chosen materials is significant to achieve reliable conclusions.

Besides the chosen materials, the amount of experiments needs to be considered. In for example the paper 'Reuse of treated red mud bauxite waste studies on environmental compatibility' (Brunori C., 2005) all the eco-toxicological experiments were run at least in quadruplicate and the outcomes were evaluated statistically using the Student's *t*-test. The focus on choosing the amount of experiments is important to preclude unnecessary experiments which do not contribute to a more reliable result.

### 3.4 Survey

The most commonly applied research type for studying a population within the research method survey, is a questionnaire, which gathers information using predetermined questions. This gives the possibility to get information from a sample that represents a larger group of the studied population. With a questionnaire it is possible to get specific information or very global. It is possible to do research within a small location (like a campus or within one building) or a population research on the scale of a country or even a continent.

The results of a questionnaire are as reliable as the questions used. For instance when you want to question about something which is quite new and you are not fully informed about the subject, an important question related to the topic is easily overseen. Therefore it is important to study the topic before you write the questionnaire. This could be done by interviewing a professional or by doing a literature study. Other study types are also possible and can be chosen regarding the subject.

An example of a research paper that uses other methods to verify the results of the questionnaire can be seen in: Reducing building waste at construction sites in Hong Kong (Poon C.S., 2010). Within this study they verified the questionnaire with a literature review and an observation by doing construction-site visits.

It is also important to get samples that are representative for the researched population. When researching building sites for instance, you need to question people who are involved in the building industry and have knowledge of the researched subject. It is also important that within the researched population the people questioned are randomly picked and that they represent the researched region. This went wrong in the research paper: A study conducted to reduce construction waste generation in Turkey (Esin T.,2007). This research is about construction waste in Turkey, but the questionnaire was only conducted in Istanbul. Istanbul is not representative for the whole of Turkey. Therefore it should be clear within the papers name and also in the content that the researched area is not Turkey but Istanbul. Or even better, the same survey should be held in multiple places in Turkey.

### 3.5 Data analysis

Existing data from secondary sources has been used to get as many useful data as possible. All the sources must have the same subject, in order to compare and use them. On organizational levels, the articles also have to contain the same system boundaries. Applying different systems boundaries to the same problem will emphasize different issues and show different results. There will probably not be a straightforward answer to the question of environmental evaluation (Roth and Eklund, 2003). However Kofoworola O.F., (Life cycle energy assessment of a typical office building in Thailand, 2009) sais, practical applications of the data results of a case study building assessment could be used to benchmark the LCEA results of future LCA's of office buildings in other cases.

The data analysis makes use of data that are all related to the reuse and recycling of materials. That means that in each source, they have used plenty of data about the life cycle and reusability of different building materials. The focus of the data is on the waste of the building materials and what their influences are on the environment.

Because the number of building constructions is increasing, the energy intensity will increase too, which leads to bad conditions for the environment. In order to improve those conditions, the system boundaries in all five research sources include the life cycle of the analyzed material. With all the data that is gathered, the results from a study have to be interpreted afterwards and valued according to which environmental impacts are considered most important (Roth and Eklund, 2003). This will also indicate different measures. Therefore it is essential for decision-making in this field, that the current environmental evaluation of the reuse of by-products is developed. Using wider system boundaries would improve the validity for possible conclusions.

### 3.6 Equation of results

*Be aware that results can be different depending on the location where a research is held and that result than only be representative for this particular location. The location dependency and reliability is also significant in several quantitative examined research papers, where the data was gathered from sources which did not match with the researched location.*

*Beside the location also the awareness of difference between concrete and opinion generated data is important to mention. Where qualitative research data is time related and influenced, the data generated from quantitative experiments is more reliable. Before you start with gathering qualitative data the researcher must be careful and informed on the developments and trends of the topic before using existing data for his experiments. Also the awareness of the randomness of data gathering regarded to time and location has to be mentioned. A wider range of quantitative data over a longer period in time or within a larger area can be used in advantage or disadvantage in the reliability of your research.*

*Researchers must be aware of the difference in the type of data gathering, between self-generating, using existing or combining these two data types. When the researcher can distinguish these forms, they can be combined and used as advantage. For example in the paper 'Reducing building waste at construction sites in Hong Kong' (Poon C. S., 2010) data types were combined by using the different methods, literature review, questionnaire survey and work-site visits. The research results will be more reliable and the scientific community will be more likely to accept your findings.*

Important to mention in *qualitative research methods* is the optimization between the effort (time) which it takes to create samples related to the reliability of the research. Be aware that reliability is not always much higher just by executing more experiments or adding more variables, don't pull the rope harder than needed, pull it to the necessary tension to maximize efficiency related to the reliability.

## 4 CONCLUSION

Therefore starting a research into the topic of environment in relation to the building sector you should realize that some guidance is necessary. Many research strategies can be applied with each their own strengths and weaknesses. Before you start your research it is vital to formulate a clear research question and to form clear system boundaries. The combination of the lack of universal standards and the similarities in the different research methods that are present makes it difficult to start your research in the right way. Based on the analysis of the different research methods, figure 2 is formed. It shows that each research method regarding the reuse and recycling of building materials will give other results. Defining the right research question and the appropriate boundaries helps you to understand what you want to know. This makes it easier to pick the right method and makes your research effort more efficient.

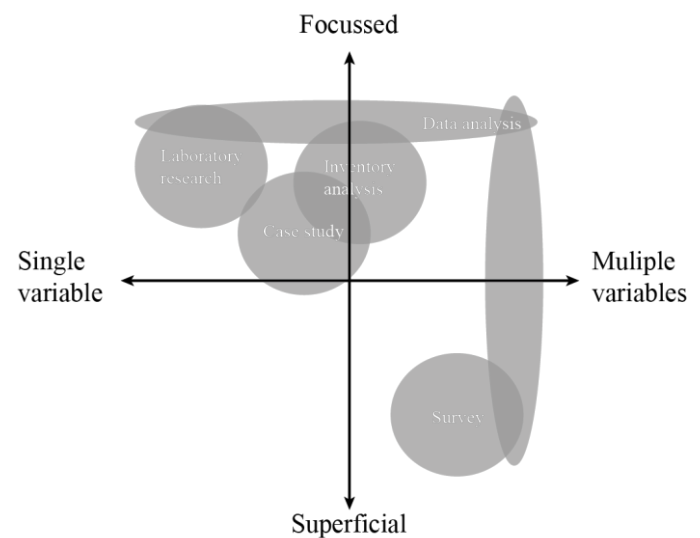


Figure 2. Research areas

When a method is chosen, it is important to analyze the method you use and recognize the weaknesses of your research approach. When there is a gap in your research approach you should

complement your research by applying an extra research method which would fill this gap. Applying multiple research strategies often helps you to verify and validate the acquired information and results. So a constant reflection between your results and methodology is necessary to work efficient and to prevent you from discovering problems in a later stage (figure 3) When the gap is discovered in an early stage it can be fixed, which prevents you from wasting time and money.

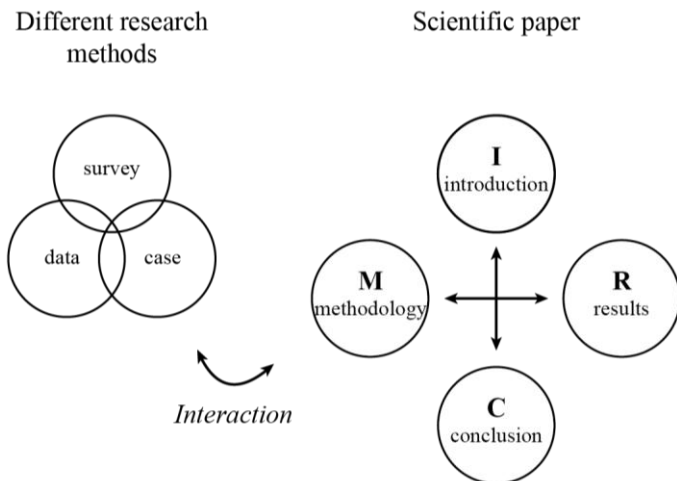


Figure 3. Interaction between research methods and paper.

## ACKNOWLEDGMENTS

The authors wish to acknowledge Dr. A.R. (Ana) Gomes Mendes M Pereira Roders and ir. A. (Anne-Marie) Peters - van den Heuvel (Technical University Eindhoven) for helpful suggestions in the development in the research setup.

## REFERENCES

- Asif M., Muneer T., & Kelley R. (2007). Life cycle assessment: A case study of a dwelling home in Scotland. *Building and Environment*, 1391–1394.
- Amponsah N.Y., Lacarrière B., Jamali-Zghal N., Le Corre O. (2012). Impact of building material recycle or reuse on selected energy ratios. *Resources, Conservation and Recycling* 67, 9-17.
- Balasubramanian J., Sabumon P.C., Lazar J.U., & Ilangovan R. (2006) Reuse of textile effluent treatment plant sludge in building materials. *Waste Management* 22–28
- Batayneh M., Marie I., & Asi I. (2007) Use of selected waste materials in concrete mixes. *Waste Management*. 1870–1876
- Bijleveld M.M., Bergsma G.C., Krutwagen B.T.J.M., Afman M.A. (2014). Meten is weten in de Nederlandse bouw. *CE Delft*.
- Bolden, J. (2013) Utilization of recycled and waste materials in various construction applications. *Department of Civil, Architectural and Environmental Engineering*,
- Brunori C., Cremisini C., Massanisso P., Pinto V., & Torricelli L. (2005) Reuse of a treated red mud bauxite waste: studies on environmental compatibility. *Journal of Hazardous Materials* 55–63
- Cravina da Rocha C., Sattler M.A. (2009). A discussion on the reuse of building components in Brazil: An analysis of major social, economical and legal factors. *Resources, Conservation and Recycling* 54, 104-112
- Cupo-Pagano M., D'Andrea A., Giavarini C., & Marro C. (1995) Use of Building demolition waste for asphalt mixes first. *Energy, environment and technological innovation*. 203-208
- Ehrlich, P. R., & Mooney, H. A. (1983). Extinction, Substitution, and Ecosystem Services. *Bioscience*.doi:10.2307/1309037
- Gao W., Ariyama T., Ojima T., & Meier A. (2000). Energy impacts of recycling disassembly material in residential buildings. *Energy and Buildings*, 553-562.
- Guy B. Building deconstruction: reuse and recycling of building materials. *Center for construction and environment B. Construction and Demolition (C&D) Recycling*
- Huberman N., & Pearlmutter D. (2008). A life-cycle energy analysis of building materials in the Negev desert. *Energy and Buildings*, 837–848.
- Kofoworola O.F., & Gheewala S.H. (2009). Life cycle energy assessment of a typical office building in Thailand. *Energy and Buildings* 41, 1076-1083
- Maccarini Vefago L.H., & Avellaneda J. (2013). Recycling concepts and the index of recyclability for building materials. *Resources, Conservation and Recycling* 72, 127-135
- Meil J. (2005). The environmental performance of renewable building materials in the context of residential construction. *Wood and Fiber Science* 37, 3-17
- McDonough, W., & Braungart, M. (2002). *Cradle to cradle: Remaking the way we make things*. New York: North Point Press.
- Morris J. (1996). Recycling versus incineration: an energy conservation analysis. *Journal of Hazardous Materials* 47, 277-293
- Perez-garcia J., Lippke B., Briggs D., Wilson J.B., Bowyer J., &
- Pongiglione M., & Calderini C. (2014). Material savings through structural steel reuse: A case study in Genoa. *Resources, Conservation and Recycling*, 87-92.
- Poon C. S. (2010) Reducing building waste at construction sites in Hong Kong. *Department of Civil and Structural Engineering, The Hong Kong Polytechnic University*. 461-470
- Roth L., & Eklund M. (2003). Environmental evaluation of reuse of by-products as road construction materials in Sweden. *Elsevier Science Ltd.*, 107-116.
- Saghafi M.D., & Teshnizi Z.A.H. (2011). Building deconstruction and material recovery in Iran: An analysis of major determinants. *Procedia Engineering*, 855-863.
- Thormark C. (2000). Environmental analysis of a building with

reused building materials. *International Journal of Low Energy and Sustainable Buildings*.

- T. Esin, N. Cosgun (2007) A study conducted to reduce construction waste generation in Turkey. *Department of Architecture, Faculty of Architecture, Gebze Institute of Technology*.1667-1674
- Vivian W. Y. Tam (2010) Rate of Reusable and Recyclable Waste in Construction. *Coventry University and The University of Wisconsin Milwaukee Centre for By-products Utilization*
- Vivian W.Y., Tama I., Gaob X.F., & Tam C.M. (2005) Micro structural analysis of recycled aggregate concrete produced from two-stage mixing approach. *Cement and Concrete Research*. 1195– 1203

# A research method analysis of redevelopment of religious built heritage

P.L.C. Deijkers, G.P.J.F.M. Roovers, M.M. Driessen, L.M.H. Engberink & A.E.G. Gähler  
*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** In nearly all western countries authorities are trying to tackle the problem of unoccupied buildings. One specific type of building that is increasingly losing function is the religious building. These buildings have their own regulations and the authorities are bound to regulations in handling and maintaining these buildings. One of the main reasons to maintain such buildings is the social value that is attached to religious building and how to deal with the opinions of the different stakeholders in the redevelopment process. Gradually the heritage of these buildings is adapting to the modern city that was built around it. To tackle the question of what to do with this context, the authors searched for articles introducing this theme. In these articles the authors came across different methods that were used to gain more information about the research question. In these articles is demonstrated how the researchers used different methods and therefore different approaches in answering the theme of this research. The authors took notice of the fact that certain methods were used more frequently than others. This led to the fact that the following methods were used in the comparison to answer the research question of this article. Case studies, surveys and participation planning are the most frequently used methods. These three methods are compared with interviews and Geographical Information Systems. The question to be answered in this paper is: what is the best approach to deal with the redevelopment of built religious heritage and the different stakeholders. In conclusion there is not only one research method that is the best method. It should be a combination of several methods. This combination depends on the research question and the willingness of the organisation to listen to the public.

**KEYWORDS:** *Built religious heritage, Methods, Public involvement, Preservation, Redevelopment*

## 1 INTRODUCTION

Due to the decline of church attendance, more religious buildings are losing their function in the modern society. It becomes difficult for the organizations to maintain these kind of buildings (churches, monasteries, cloisters etc.) To prevent the building from decay, in many cases the buildings will be sold to the local municipality. Religious buildings have a very specific building typology and therefore the assumption is often that it is hard to find a new owner and a new function. The buildings are a memory to a specific type of life which comes with a specific meaning, cultural and emotional value. These buildings have taken an important place in the society and therefore the public has

strong feelings and meanings about these buildings. The question to be answered in this paper is: what is the best approach to deal with the redevelopment of built religious heritage and the different stakeholders.

The aim of this research is to gain understanding on how to deal with these religious buildings. To find the actors involved in the process of redevelopment, it is necessary to investigate previous research regarding this theme. Examples of these actors are: the user, researchers, decision makers, communities and municipalities. All these participants have a different relation to the project. How do all these relationships influence the redesigning of a religious building, what is the influence of the people dealing with this subject, and in what way do you have to involve the people in the process of redevelopment.

In the articles used for writing this paper certain methods return frequently. The methods that occur frequently in these articles are case studies, surveys and participation planning. These methods are the main subject of this paper. They are compared with two other methods: interviews and Geographical Information Systems. These two methods are chosen to broaden the research and comparison. In this paper the methods are analysed within the process of redevelopment of religious built heritage, and these methods are compared to evaluate the methods to eventually find the most suitable method for this process. In *Methodology* the different methods are explained and definitions of the methods are given. The different articles of the methods are compared with each other in *Results* and at last conclusions are drawn per method and then an overall conclusions can be found in the chapter of *Conclusions*.

## 2 METHODOLOGY

### 2.1 Case studies

It is hard to give an exact definition of case studies, because it is a very broad research method. It is possible that a case study is based on only one case (single-case study), but it is also possible that it is based on several cases (multiple-case study). Also the amount of actors that is involved in the research can be different, from one actor (person or organisation) to several actors (Swanborn, 2010). It is possible that the research is very in-depth and detailed, but it is also possible that the research is very broad and general, that depends on the research question. The context of case studies is often a real-world subject. It is possible to use several data sources, for instance an interview with the actors, an observation or literature. This means that case studies are most of the time connected to other research methods and are often used as examples.

### 2.2 Surveys

The method survey is a relatively easy, quantitative approach of collecting data. There are several configurations which are collected under survey, in this literature review the term survey includes questionnaires. Questionnaires are lists of questions which can be answered in several ways. There are simple 'yes or no' questionnaires, questionnaires with open questions, questionnaires with set answers which are obtained with other research methods.

And there are also questionnaires with a five, seven or even more point scales. These scales are based on the method Rensis Likert introduced in 1932. The respondents are asked to specify their level of disagreement or agreement on a scale which lead from 'totally disagree', 'disagree', 'neither agree or disagree', 'agree' to 'totally agree'. In the seven point scale the points 'disagree somewhat' and 'agree somewhat' are added. In some cases the neutral or 'neither agree nor disagree' is removed to 'force' the respondents to make a choice. These questionnaires with five or seven point scales are the most widely used approach to scaling responses (Likert, 1932).

### 2.3 Participation planning

'Input' is the key word, which differentiates participation methods from other communication strategies (Smith, 1983). At the lowest level this involves top-down communication and a one-way information exchange, while the highest level is characterized by dialogue and two-way information exchange. Participating planning is a two-way based information exchange system. Examples of this public participation are: consensus conferences, citizens' jury/panel, citizen/public advisory committee and focus groups. All these groups consist of small groups who represent the public. The meetings are often open to a broader public. The outcomes and conclusions on key questions are often published by a report or press conference (Rowe, 2000).

### 2.4 Interviews

Interviewing is a qualitative research method that aims to receive a more valuable answer or result than the results of a quantitative research method such as surveys. An interview is an excellent method to get ideas or opinions about certain subjects. This information retrieved is more valuable and goes 'deeper' than the information obtained by quantitative research. Within this theme, this method is a very valuable one, because it is important to take the public opinions and ideas into account when redeveloping religious built heritage. This built heritage often has a strong emotional or historical meaning for the society and these buildings should therefore be treated with care.

## 2.5 Geographic Information Systems

Geographic Information Systems (GIS) is a method that links spatial and non-spatial data of landscape features into digital maps to help documenting different urban features besides their role in modelling the urban process and their effect on heritage sites (Al-kheder, Haddad, Fakhoury, Baqaen, 2008). It collects, processes, and manages both cartographic and alphanumeric data. This method gives an overview of the problems that are present in the investigated area, which has to be chosen before the beginning of the research. These maps clarify the evolution of the area and how the different zones of the area work in relation to the overall urban structure. The method investigates correlations which can be specified in the research question.

## 3 RESULTS

### 3.1 Case studies

In four of the five articles that were used in this research, case studies are used as a research method, while the other article elaborated on the use of case studies. In the article *Tweede-hands Kerken* (Bilkes, 2010) the researcher aims to determine that rezoning is a suitable solution for religious built heritage in the Netherlands. In this article there are three case studies of religious buildings that already have a new function. And there are four questions about the function that the writer applies to the cases: should it be sacral or profane and is it a barrier for urban development? Because of the significant differences between the case studies it is difficult to compare them. The article concludes that most actors or stakeholders hope that it is possible to preserve the sacral function, but in most cases it is necessary to search for a new function. In the second article *De invloed van vooronderzoek bij herbestemming & transformatie van monumenten* (Heijer, 2014) the research is more specific. The aim of this article is to give recommendations to improve the process of mapping costs and duration of mandatory historical research for the application of a permit for transforming monuments. There are six case studies of built heritage that are already rezoned or transformed. For each case there is a description of two important values, namely the costs and the duration of the historical research. Because there are only two themes it is easy to compare the results.

Unfortunately it is not possible to give an explicit conclusion that suit for all rezoning projects (in the future), because every project is different. However it is possible to give some general conclusion that can be of use in new projects. In the third article *Slopen of omdopen* (Raats, 2010) the aim is to discover and study the conflicts that occur in the decision making process for rezoning religious buildings and how to deal with these conflicts. The decision making process and the conflicts that occurred are described for two case studies in this article. The conclusion is only based on the case studies in this research and therefore no representation of reality. It is not possible to generalize and use these conclusions for other projects. In the last article *Herbestemming van rijksmonumenten* (Vervloed, 2013) the aim is to create a manual for the rezoning process of national monuments. The case studies show the rezoning processes in finished projects. Every case study has valuable elements and with these elements a manual has been created for the rezoning process. The created manual is then tested with a design assignment. The conclusion of the article is that the manual provides guidelines for the rezoning process, but it cannot predict and prevent all uncertainties. The manual offers also space for creativity and flexibility in dealing with monuments and there is a possibility for changes in the policy of preservation.

Case studies never produce a general conclusion, but most of the time the result consists of questions and hypotheses that you can use for other projects (Flyvbjerg, 2006). A major disadvantage of case studies is that they often use other research methods to collect data. Usually case studies have a clear structure which makes it easier to compare the different cases and this makes it easier to find a conclusion. This structure also makes the research more accessible for people who lack knowledge regarding the research.

### 3.2 Surveys

In the articles used to review the method survey only questionnaires with 'yes or no', multiple choice, 5-point, 6-point and open response options are used.

Since all the answers per questionnaire are in the same format, the answers are easily comparable. Answers can be placed in pie charts or bar graphs which makes it possible to compare different questionnaires with the same theme.

In the literature reviewed, different topics of redevelopment of religious built heritage are addressed and different methods are used beside surveys. The topics addressed with the surveys are the opinions of the actors on the reuse of different churches and preferable potential functions for reuse in *Church buildings in Groningen* by Sina Andrén, Ilze Jankava, Māra Pucena, Márta Rekvényi and Emma Rugg<sup>2</sup>. In *Local Communities' Perceptions towards Building Reuse in Old Residential Quarter of Melaka City* by Rhan See Chua and Atsushi Deguchi the respondents had to answer questions regarding the topics of the impact of adaptive reuse, who the reused building benefits to and what the benefits and disadvantages of building reuse are. In *Holy renovations* by Benjamin Garstka the survey consist also of three parts. The first contains statements of the future functions of church buildings. Second, some questions about issues related to adaptive reuse and last some general information about the participant. In *Prophet to Profit* by Louise Holt the questionnaire included themes as: knowledge of the building's history, reasons for reuse, understanding of significance, religion, community and structure. All questions in these questionnaires could be answered with 'yes or no'. And last, in the research of Rani Prihatmanti and Azizi Bahaiddin *Impacts of Adaptive Reuse in the UNESCO Listed Heritage Buildings, George Town, Penang* the questionnaire focuses on the impact of adaptive reuse in heritage buildings. A general fact one can say with regard to the articles is that survey is a relatively easy method to gather information from actors. Depending on the configuration of the questionnaire different response categories can be obtained and compared in several ways, as pie-charts or graphs.

### 3.3 Participation planning

As stated in 'Slopen of omdopen' owners of religious complexes and the interested buyers do want no interference of third parties during negotiations. Therefore these parties only know from the deal when it is closed which results in fierce opposition. To be prepared against this opposition it is a good option to involve the public in an early stadium with public participation. 'Input' is the Key word to differentiate this method from other communication strategies (Smith, 1983). This tactic can be seen in the case of the River state government in the study 'local planning and public participation: the case of waterfront redevelopment in port Harcourt, Nigeria' by Aprioku. Lack of an organizational framework for participation and a

lack of skills on the participants and the project staff, leaded to little impact at government levels. It is necessary for the group of representatives to attain an adequate level of organizational structure. The success of participation planning depends on the power to influence decision making according to Abbott and Arnstein (as cited by Yung and Chan in 'Problem issues of public participation in built-heritage conservation') Yung and Chan compared two controversial cases of public participation in Hong Kong. They found the success largely depends on the political will. In their cases the role of community-initiated interest groups is enforced as an informal channel for public participation. In the research 'Public Participation Methods: A framework for evaluation' by Rowe and Frewer, public hearings score low on the impact on the decision making process. Communication is primarily one-way. By allowing only limited choices on narrow, short-term questions, public hearings often seem designed to contain and control participation. Although focus groups score high on acceptance criteria they do not on process criteria. Therefore the impact may be high. A solution to this can be a binding commitment by the government to implement their results.

### 3.4 Interviews

In the paper *Slopen of omdopen* (Raats, 2010) interviews are used for the empiric part of the research to put the case studies in a context and to discover the problems that occur frequently in redevelopment processes. The interviews are also used to investigate the decision making progress and the conflicts that have occurred. Interviews are used to ask deeper questions for useful answers and to get opinions of the people interviewed. In *Herbestemming van Brabantse kloostercomplexen* (Wijnekus, 2009) the interviews are used to obtain additional information and to test ten hypotheses with an empiric and methodological character. Besides the possibility of asking deeper questions, the relationship, differences and similarities between the actors can be further investigated. The purpose of interviewing in the article *Een processanalyse van de herbestemming van katholieke kerken* (Van der Staak, 2013) is investigating the number of redevelopment processes. With structured interview in a table the information gained from the interview is easier to process. Before the interviews the researcher investigated the topic so the researcher can be critical towards the information. The interviews are used to investigate the process of the

redevelopment and to determine the possibilities of change in these processes (*Herbestemming van rijksmonumenten*; Vervloed, 2013).

By analyzing these articles interviewing has significant advantages over surveys. The questions are often more thorough and the questions can change over the interview to gain more information, while the surveys are predetermined. It is possible to compare the similarities and differences between the actors and personal opinions can be investigated. However, there are also disadvantages in interviewing. The often small amount of people interviewed is mostly not representative for a larger group of people. And the time, location and other effects can influence the answers of the people given to the questions. People have to give an answer at that moment, while with a survey, they can choose when they want to answer a question and can take the time to think about their answer.

### 3.5 Geographical information systems

GIS is usually combined with a case study or other methods. In this way the requested correlations can be found. In the articles the modern city is compared with the heritage landscapes. It focuses on evaluating the current condition of the historical urban system, and how it changed over time. These researches are needed in order to address the insufficient urban planning aspects and practices facing the sustainable urban heritage fabric.

In *A GIS analysis of the impact of modern practices and policies on the urban heritage of Irbid, Jordan*, the conclusion of the paper describe the missing master plan of the city, which give it some structural issues. This case study shows how the old built environment behaves in the modern city. It evaluates the current urbanization process in Irbid, Jordan and its role in the degradation of its historic part. With similar cases, the authors recommend to first have access to a complete image of the topography of the study area.

In *Traces on the Palimpsest* the urban form of Athens in Greece and Alexandria in Egypt are compared on four different layers. It investigates the links between a city's heritage and the formation of cosmic urban forms that are distinguished by their combination of geometry and urban rites and rituals. These analyses reveal that the spirit of places remains constant as the urban form is reshaped. The distinctive spirit of place remains constant throughout the centuries. The spatial articulation of each city's is far from constant. Through time the

cosmic urban forms successfully articulated their spatial spirit when they integrated contemporary and innovative design that evoked the symbolic significance of their heritage and simultaneously, nurtured contemporary urban rites and rituals that established continuity with their past.

In *The risk map of Italian cultural heritage* the maps produced by GIS have improved the knowledge of cultural heritage distribution in municipal districts, have defined the extent of territorial danger and, through the formulation of corresponding indicators and indexes, have related this to different levels and combinations of information. This was done by combining the Risk Map with GIS which assess the vulnerability of every single monument. The aim for this research was to develop a more rational and economical means of undertaking the maintenance, conservation, and restoration of the architectural and archaeological monument of Italy.

## 4 CONCLUSIONS

In the process of the redevelopment of religious built heritage is the method with which the researcher gathers information important. The five methods analyzed are the five methods that the authors determined as most useful for the process of redevelopment. After analyzing the articles the different methods have advantages and disadvantages. The case studies are often used to test hypothetical situations. The case studies are easily comparable due to the clear structure of the case studies, as described in the articles. However, the case studies differ often and there is not one best case study. It depends on the situation and context to define the case study. But this feature makes it a very useful method for the processes of redevelopment of religious built heritage, because the situation is very different with each individual case.

From the topics used in the articles it can be noticed that surveys are often used to gather information from users and other people who got in contact with the reuse of religious heritage. It is relatively easy to get in contact with these people but one big downside to surveys is the return rate. It is generally known that survey return rates tend to be low. Another fact to take in to consideration is the structure of the sample group. If one wants to compare the answers given by the respondents, these respondents should reflect the part of society to which the questionnaire is directed. Survey is a

method often used because it is an easy method to use and to compare results, due to a quite similar structure of the surveys and because the researcher can obtain a significant amount of information and answers from a large group of people.

The success of participation planning lays in the organization and the willingness of the government to listen to the participants. For the best results the participants should be involved early on in the process. The group of representatives should have an adequate level of organizational structure to be effective and more relevant in the redevelopment program. This can be achieved by training and education in self-management.

Interviewing is an excellent method to use when the researcher wants to investigate the opinions and viewpoints of actors in the process of redevelopment. The information and answers obtained are of a qualitative nature compared to the quantitative nature of the information obtained by the surveys. In interviews it is possible to ask the actor more questions, to ask further regarding a topic. Therefore, the similarities and differences between the actors can be investigated in interviews. However, due to the times an interview takes, it is often not possible to interview a large group of people that are a representation of the community. With religious built heritage it is often important what the community thinks of the building. Therefore, interviewing could be a time consuming method and thus surveys is often more realistic to obtain answers from a large group of people. Second, time, location, social pressure and other factors have influence on the answers of people.

By using GIS as a research method the different problems of the city can be described in maps. This method is often combined with a case study, because certain examples with their current problems can be explained. Different stages can be set out in an overview and with these maps a conclusion can be drawn. This research method is a good example of how religious buildings can be studied, the differences between the old and the modern city become clear. Before starting with this research, a clear area has to be chosen otherwise answering the correct research question is not possible. The disadvantages of this method can be found in choosing the wrong area. Another thing is that the social emotion, which is often related with the cultural heritage, cannot be drawn in any map. The advantages of this method are the comparison between different maps, in different times, and different questions that can be drawn easily. The

correlation becomes clear by combining different kind of methods during a case study.

What is the best research method to research how to deal with the rezoning of religious buildings? Is there a research method that is the best? It depends on what exactly is going to be investigated. In relation to the research question of this paper, surveys and case studies would be the most suitable methods: surveys because it is important to know what the opinion of the neighborhood is, and case studies to see how others dealt with the problem of rezoning religious buildings. GIS helps in mapping the value of the religious buildings and point out their strength and weaknesses.

Most of the methods researched are often combined with other methods. To conclude; there is not one specific research method that is the best method. It should be a combination of several methods. This combination depends on the research question, the investigated area and the willingness of the organization to listen to the public.

## REFERENCES

- Accardo, G.; Giani, E.; Giovagnoli, A. (2003), The Risk Map of Italian Cultural Heritage. *Journal of architectural conservation* 9 (2), 41-57
- Al-kheder, S.; Haddad, N.; Fakhoury, L.; Baqaen, S. (2009), A GIS analysis of the impact of modern practices and policies on the urban heritage of Irbid. Jordan: *Cities* 26 (2), 81-92
- Andren, S., Jankava, I., Pucena, M., Rekvenyi, M., Rugg, E. (2010), *Church buildings in Groningen. Former, present-day and potential future use of churches in the city*. Rijksuniversiteit, Groningen
- Aprioku, M. (2010), Local planning and public participation: the case of waterfront redevelopment in port Harcourt. *Nigeria: Planning Perspectives*
- Bilkes, R. (2010), *Tweedehands kerken*. Universiteit Utrecht
- Chua, R.S., Atsushi, D. (unknown), *Local Communities' Perceptions towards Building Reuse in Old Residential Quarter of Melaka City*. Kyushu University, Japan
- Flyvbjerg, B. (2006), *Five Misunderstandings About Case-study Research*. Sage Publications
- Garstla, B. J. (2012), Holy renovations: Adaptive re-use and dependent stakeholders opinion of converted church buildings. *Utrecht: Master of Urban Geography*
- Heijer, R. (2014), *De invloed van vooronderzoek bij herbestemming & transformatie van monumenten*. Technische Universiteit Delft
- Holt, L. (2010), *From Prophet to Profit. Masters of Cultural Heritage Management Programme Department of Archaeology*, Flinders University of South Australia
- Khirfan, L. (2010), Traces on the palimpsest: Heritage and the urban forms of Athens and Alexandria. *Cities* 27 (5), 315-325
- Kutut, V.; Zavadskas, E.K.; Lazauskas, M. (2013), *Assessment of priority alternatives for preservation of historic buildings using model based on ARAS and AHP methods*.

- Pendlebury, J.; Townshend, T.; Gilroy, R. (2010), The Conversation of English Cultural Built Heritage: A Force for social Inclusion? *International Journal of Heritage studies*.
- Pendlebury, J.R.; Short, M.; While, A. (2009), Urban world heritage sites and the problem of authenticity. *Cities* 26 (6), 349-358
- Prihatmanti, R. , Bahauddin, A. (unknown), *Impacts of adaptive reuse in the UNESCO listed heritage buildings*, George Town, Penang. School of Housing, Building and Planning University Sains Malaysia, Penang.
- Raats, K. (2010), *Slopen of omdopen: een onderzoek naar besluitvorming bij herbestemming van kerkgebouwen*. Universiteit van Amsterdam
- Rowe, G; Frewer, L.J. (2000), Public Participation Methods: A Framework for Evaluation. *Institute of Food Research. Science, Technology & Human Values*, Vol. 25 No.1, Sage Publications Inc.
- Sampaio, A. (2007), Heritage protection, urban conservation and planning. *City & Time* 3 (2), 95-107
- Singh, B. (2005), *Integrated survey techniques: Need for redevelopment projects: Experience of an Indian City Amritsar*. Amritsar – 143005 (Punjab): Guru Ramdas School of Planning Guru Nanak Dev University
- Smith, Y. (unknown), *Participatory planning and procedural protections: the case for deeper public participation in urban redevelopment*.
- Staak, M.W. van der (2013), *Een procesanalyse van de herbestemming van katholieke kerken*.
- Swanborn, P. (2010), Case Study Research. *Sage Publications*
- Vervloed, T. (2013), *Herbestemming van rijksmonumenten*. Technische Universiteit Delft
- Wijnekus, J. (2009), *Herbestemming van Brabantse kloostercomplexen: Ideëel gekkenwerk of kwestie van samenwerken?*. Masterscriptie Planologie Provincie Noord-Brabant
- Yung, H.K.; Chan, H.W. (2010), Problem issues of public participation in built-heritage conservation: Two controversial cases in Hong Kong. *Habitat International, Elsevier*

# Reuse of construction materials after demolition

S. Faarts, H. Haidari, A. Igumnova & N. Kolahi (A. Benamar)

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Among the many aspects of sustainability in the built environment, the reuse of materials plays a key role as a resources-saving strategy. Nowadays, it is crucial to be able, as designers, to not only think about the construction but also about the deconstruction processes. More generally speaking, the use of materials, especially construction materials, is now intended as cycles instead of a linear consumption path. Within the research field for this issue, an investigation into the methodologies currently in use for the assessment of the reuse of construction materials after demolition has been conducted. The existing literature on the subject clearly shows diversity in methods and approaches, which is the reason why it was needed to identify, evaluate and compare them. The goal of this paper was to focus on the strengths and weaknesses of each research method in regards to this topic. This resulted in a comparative and systematic analysis to determine the research method or the combination of methods which works best for a series of applications. The paper is intended as a starting point for researchers that focus on this topic in order for them to determine how to establish and structure their own research. The way in which this research was performed is that each group member focused on one specific method and explored the related process, the tools it involved, the outcome, and possible findings or limitations. This is catalogued in various literature grids trying to identify the constant parameters and the variable ones. This individual study eventually led to a comparison of the results among the group members, which led to conclusions on differences and resemblances between the research methods; where do they come from and how they can be explained.

**KEYWORDS:** *Reuse of construction materials, Demolition, Comparison of research methods, Sustainability*

## 1 INTRODUCTION

Sustainability is a worldwide discussed issue, which is a main topic in many published journal articles and books. Very often in these publications, besides energy production and energy use, the terms use and reuse of materials are considered. The reason for this is the increasing accumulation of waste and its management, which cause a worldwide sustainability problem. (Delay et al., 2006) “The generated waste causes depletion of already diminishing natural sources, causes air and water pollution from waste that is improperly disposed of, and puts pressure on premium landfill space.” (Chini & Goyal, 2012) According to a publication of *Waste Management & Research* the generation of construction, renovation and demolition (C&D)

waste exceeds 450 million tons a year in the European Union. As this information is known for many years, at this moment several countries already reuse and/or recycle a large part of their C&D waste. In the Netherlands, for example, 90 percent of the C&D waste is recycled or reused, while in other European countries such as Portugal, Spain, Greece and Ireland less than 5 percent of the C&D waste is being recycled or reused. (Prestes et al., 2012)

Several researches are present in current literature on the reuse of construction materials after demolition, which also present findings of reuse in other parts of the world. In an article by Da Rocha & Sattler (2009), *A discussion on the reuse of building components in Brazil: An analysis of major social, economical and legal factors*, is stated that despite the existence of legislations relevant to waste management, no national index for recycling of

waste material exists these days. (Prestes et al., 2012)

The aim of this paper is to focus more attention on the reuse of construction materials after demolition. This aim will be achieved by performing a literature review on the research methods by which the possibility of the reuse of construction materials after demolition is defined. In order to get a better understanding of this process, first an introduction will be given on research in general.

The process of making claims (*a.k.a.* hypothesis) and then refining or abandoning some of them for other claims more strongly warranted is called research (Creswell, 2003). A research study paper is a primary source that reports the methods and results of an original study performed by the authors. There are various kinds of research studies such as: experiments, surveys, interviews, and etc.; however, in all cases, the raw data is collected and analyzed by the authors and the conclusions are drawn from the results of such analysis. Generally, there are three main approaches for a research study: (i) qualitative, (ii) quantitative, and (iii) mixed research methods.

The quantitative research study is objective and aims at explanatory laws while qualitative research study is subjective and seeks in-depth descriptions. Quantitative research usually starts with examining of a theory. This is done by collecting information on instruments based on the findings that are gained by observations or participants that are recorded by the researchers.

Qualitative research works better when the research is trying to identify factors that influence a result or the utility of an intervention. Qualitative research is the best approach to test a hypothesis or explanation. It is also an exploratory method. Therefore, it is very useful in situations where the researcher does not know the important variables to examine in advance. This situation can occur whenever the research topic is new, never addressed, or when existing theories on the research topic may not apply to the specific case which is being studied (Creswell, 2003).

The mixed research method, usually, involves collecting or analyzing various types of data in a single study to find out the research problem (Tashakkori & Creswell, 2007b, p. 4). In other words, the researcher starts by exploring in a general way, to learn about what variables to study. After that, the researcher would study these variables with a large number of people. For instance, a researcher may first survey a large number of individuals and follow up with a few of them to obtain more specific

information from them on the research topic. Moreover, the results from one method can help in developing or informing the other method (Greene, Caracelli, & Graham, 1989). In order to perform a comprehensive analysis, a research study approach that employs a mixture of methods can be seen as the appropriate technique.

## 2 METHODOLOGIES

### 2.1 Research methodology

In the beginning, the search for articles done by each individual student on the chosen topic led to the creation of the first literature grid. In this grid, the articles were sorted by their research method. The conclusions, resulting from this grid, were that some of the research methods were used more often within our topic: 'reuse of construction materials after demolition'. The five different methods that were used more often (literature review, case study, laboratory experiments, data analysis & survey) were then designated to individual group members in order to review them. In some cases, additional articles had to be found so that a comparison between five articles of each research method could be conducted. After this selection, the grid was partially enhanced with more detailed source information on the selected articles.

The second literature grid was made by scanning the articles individually, and investigating their purpose, findings (strengths) and limitations (weaknesses). This resulted in a scheme where 20 articles were evaluated, divided into 4 different research methods. (There were a total of 25 articles supposed to be evaluated, but at this point Arslane Benamar had to put this course on hold due to personal reasons.)

To review the different research methods, a third literature grid was made. Within this grid the general purpose, findings, and limitations of each method were summarized based on the five reviewed articles.

In the end, a comparison was made based on the third literature grid, which led to a fourth literature grid and to the conclusions of this research paper.

### 2.2 Courses of action

Through the search for articles on the topic of reuse of construction materials after demolition, some research methods seemed to be used more often than others. A selection of five of these reappearing

research methods was used to perform this study. Each student then focused on one specific method and explored the findings and limitations of the method. This resulted in the following division for exploring the research methods:

- Negar Kolahi, literature review.
- Stijn Faarts, case study.
- Hasana Haidari, laboratory experiments.
- Anna Igumnova, data analysis.
- Arslane Benamar, survey.

Due to some personal issues, the parts of Arslane Benamar are not included and will be added to these findings in his paper.

### *2.3 Research methodologies in theory*

In order to have a clear understanding of the selected research methodologies they will be described in this chapter, based on theoretical knowledge. The academic literature found on each of these research methodologies will be referenced accordingly.

### *2.4 Literature review*

A literature review is a type of research method that assesses the studies that have been conducted in the literature on the chosen subject. It usually contains the description, summarization, assessment, and the clarification of the topic and provides a theoretical basis for the research. The purpose of the literature review is to provide a context for the research and to cover what has been done before. The literature review must identify the strengths and weaknesses of previous research studies (Boote & Beile, 2005). The outcome of a literature review may be compiled in a report or it may serve as part of a research article, thesis or a grant proposal.

The literature review research methodology is mainly deemed plural rather than singular, because the researcher should examine a variety of academic literature in order to reach the point where he/she can produce a coherent and well organized review. For instance, the researcher links a continuing discussion in a certain shape or form through directing qualitative research. In this method, the uniqueness of an approach or a theoretical reinterpretation adds for several objectives such as the use of theoretical literature that increases the understanding of a subject and tests a hypothesis. Furthermore, it can describe the plurality of the literature, highlight the difference between general and specific literature, and also examine the methodology and data literature that shape

significant parts of the research process (Race, 2008).

One of the unique features of literature review studies is the effort that has been made towards introducing various metrics for categorization of different research studies that have been conducted on the topic of choice. These categories, if well defined, can help inexperienced researchers on the topic to get a better understand of what has been done thus far, and what needs to be done in further research.

Another important consideration is the use of theory and theoretical literature. Once the research design has been created, ideas and theoretical frameworks can be used and tested to increase the understanding of the qualitative research being carried out (Race, 2008).

### *2.5 Case study*

Qualitative case study methodology provides tools for researchers to study complex phenomena within their contexts. When the approach is applied correctly, it becomes a valuable method for scientific research to develop theory, evaluate programs, and develop interventions. (Baxter & Jack, 2008: 544)

According to Yin (2003) a case study design should be considered when: (a) the focus of the study is to answer “how” and “why” questions; (b) you cannot manipulate the behavior of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context. (Baxter & Jack, 2008: 545)

Propositions are helpful in any case study, but they are not always present. When a case study proposal includes specific propositions it increases the likelihood that the researcher will be able to place limits on the scope of the study and increase the feasibility of completing the project. The more a study contains specific propositions, the more it will stay within feasible limits. These propositions may come from the literature, personal/professional experience, theories, and/or generalizations based on empirical data. (Baxter & Jack, 2008: 551) Each proposition serves to focus the data collection or determine direction and scope of the study. Together the propositions form the foundation for a conceptual structure/framework (Miles & Huberman, 1994; Stake, 1995).

A hallmark of case study research is the use of multiple data sources, a strategy which also

enhances data credibility (Patton, 1990; Yin, 2003). Potential data sources may include, but are not limited to: documentation, archival records, interviews, physical artifacts, direct observations, and participant-observation. Unique in comparison to other qualitative approaches, within case study research, investigators can collect and integrate quantitative survey data, which facilitates reaching a holistic understanding of the phenomenon being studied. In a case study, data from these multiple sources are then converged in the analysis process rather than handled individually. Each data source is one piece of the “puzzle,” with each piece contributing to the researcher’s understanding of the whole phenomenon. This convergence adds strength to the findings as the various strands of data are braided together to promote a greater understanding of the case. (Baxter & Jack, 2008: 554)

In the end, case study research is more than simply conducting research on a single individual or situation. This approach has the potential to deal with simple though complex situations. It enables the researcher to answer “how” and “why” type questions, while taking into consideration how a phenomenon is influenced by the context within which it is situated. For the novice research a case study is an excellent opportunity to gain tremendous insight into a case. It enables the researcher to gather data from a variety of sources and to converge the data to illuminate the case. (Baxter & Jack, 2008: 556)

## 2.6 Laboratory experiments

Laboratory experiments, being a quantitative research method, is a part of experimental research in general. “An experiment tests cause-and-effect relationships in which the researcher randomly assigns subjects to groups.” (Creswell, 1994: 117) Common for all experiments is the involvement of random assignment of participants to the conditions of the study, an independent variable and a dependent variable (Crano, 2004: 545). A distinction can be made between experiments in laboratory settings and experiments in field context in the level of control of the conditions. In laboratories the conditions are highly controlled, while that degree of control is often not possible in field context. Less control on the conditions leads to more tentative conclusions, caused by unknown or uncontrolled variables. (Crano, 2004: 545)

In laboratory experiments the researcher is able to test cause and effect as theoretically all variables

between the manipulated (independent) variable and the outcome are controlled (Creswell, 1994: 117).

The purpose of random assignment of participants or samples is to ensure that each sample has equal probability to be assigned. Furthermore, the sample is ensured to be representative for the population by this procedure. This random assignment of samples enables the researcher to generalize results to a population (Creswell, 1994: 126-127). Yet, in some cases the assignment may be done to the convenience of the researcher, which makes the results less generalizable, but more precise for a specific group. After this assignment for the experiments, the samples are assigned to different conditions in the experiment, either randomly or conveniently. Different conditions within the experiment are constructed by different levels of the independent variable. When both assignments are done randomly the possibility of systematic differences occurring among subjects and the environment of the experiment that could affect outcomes will be eliminated (Crano, 2004: 127).

In a laboratory experiment the effects on the samples as well as the measures of the effects should be made observable. This process is called operationalization.

This research method is said to be a “highly constraint research technique”, as all samples theoretically are equivalent in all aspects through randomization, except that some are exposed to the independent variable and others are not. That means that there should be no differences between the samples on the dependent variables unless the independent variable has had an effect. This constraint characteristic of the laboratory experiment is causing some questions to arise on the generalizability of the findings. (Crano, 2004: 546)

Although this research method is an ideal method to determine cause-effect relationships, it is not an appropriate method to develop hypotheses. Only when the theory surrounding a phenomenon is well developed, this method can develop a hypothesis based on theory. Laboratory experiments can then be of physical assist in order to understand the precise nature of the researched construct or material. (Crano, 2004: 546)

## 2.7 Data analysis

Data analysis can be applied both in qualitative or quantitative researches. It is the process that the researcher uses to reduce and interpret large amounts of collected information into a story about the research topic that describes the phenomenon or the

participants view. (Kawulich, 2004) Depending on the goal of the research, the theoretical framework of the study, and the appropriateness of the techniques for making sense of the data, different sources of data can be used. Data might consist of interviews and observations and might also include documents, films or videotapes, numbers and statistics; even data that have been quantified for other purposes such as census data. (Strauss & Corbin, 1998)

Initially, data is a raw material which cannot be used for the analysis immediately and requires some processing. Raw interviews or field notes need to be corrected, edited, and typed up; tape recordings need to be transcribed and corrected. (Miles & Huberman, 1994) An objective coding scheme must be applied to the notes or data. This process is commonly called content analysis. (Berg, 2001) The coding process generates categories with certain data properties. The coding process separates the data into categories that reflect certain properties of the data. (Kawulich, 2004)

Basically data analysis consists of five major components:

- Defining the problem.
- Collecting the data.
- Organizing and interpreting data. These usually consist of conceptualizing and reducing data, categorizing, simplifying and abstracting. Conceptualizing, reducing, elaborating, and relating often are referred to as coding. (Strauss & Corbin, 1998)
- Analyzing the data. There are many various approaches to the data analysis defined by several researches, which include: hermeneutics or interpretive analysis, narrative and performance analysis, discourse analysis, grounded theory analysis, content analysis, and cross-cultural analysis. (Kawulich, 2004) This analysis can be displayed in many ways such as matrices, graphs, charts, diagrams and networks. (Miles & Huberman, 1994)
- Reporting results, which can be released in written as well as in verbal form. These may be presented as articles in scientific journals, in talks (e.g. conferences), or in books. (Strauss & Corbin, 1998)

Well-collected data is a very powerful instrument in a research. The fact that the data were collected in a specific situation makes it reliable and precise for future analysis. Accurate data provides rich and holistic information in a real context that has a strong potential for revealing the complexity of the situation. Another important aspect is that the data

are typically collected during a certain period of time which makes them powerful for studying the process. This data gives a clear view on the problem process throughout time and, therefore, makes it possible to make a comparison analysis through time. (Miles & Huberman, 1994)

### 3 RESULTS

In order to understand how research methods work in practice, this chapter will start with the overview for each method consisting the five chosen articles and an analysis of the ways in which the research method was applied in these articles. Three essential components of each method will be discussed: purpose, findings (strengths) and limitations (weaknesses). This analysis will be realized based on the literature grids that were made by individual group members for each method.

Furthermore, findings from the articles will be compared to the theoretical descriptions of the methods which were provided in the previous chapter. This study will reflect the previously discussed theory of the methods on the practical applications.

The last part of this chapter, will compare the methodologies with each other, which will possibly categorize methods while indicating similarities or differences in three components (purpose, strengths and weaknesses). The third level of the literature grid will be used as a basis for this study and will lead to the creation of the fourth level grid, which is the basis for this last part of chapter three.

#### 3.1 Literature review

By reviewing the literature regarding the reuse of construction materials after demolition it became clear how the researchers took advantage of these reviews. In “Closed-loop recycling of recycled concrete aggregates” the results gained through experiments on two different methods of concrete production, is reviewed to choose the high quality concrete for preserving the natural resources. (Marie & Quiasrawi, 2012)

In the second article authors reviewed the literature related to the issue of deconstruction of older buildings to propose solutions for the environmental friendly architecture. (Guy, 2002)

Through various experiments and theoretical basis which was made through previous studies, Vefago concluded that the best way of using materials from buildings is through reuse. And then, through

employing the terminology of recycling he concluded that the wooden structures have the highest index of design recyclability compared to other structures. (Vefago, 2012)

In the article named “Rio 2016 sustainable construction commitments lead to new developments in recycled aggregate concrete”, Filho reviewed examinations on a mixture of recycled aggregate concrete with sugarcane as pozzolanic binder to test the strength of the concrete. As a result, recycled concrete could reduce the use of energy and save natural resources. (Filho, 2013)

The construction and demolition waste generation and recycling in several European countries is reviewed through other researches that are gathered in “Sustainable construction: construction and demolition waste reconsidered”. As a result, to improve the processing of these wastes a variety of measures and strategies is proposed. (Gracia, 2010)

The literature review method used in the aforementioned papers has several benefits. One of the main benefits is that it enables the researcher to determine the methodologies used in a similar topic. Another advantage that came up is that the researcher can identify others that have performed any kinds of research on the same topic. (Guy, 2002) Furthermore, an evaluation on the current state of the art can be done. For instance, researchers can define relevant information which will help to determine what is already known about the topic.

There are some limitations to the literature review method as well. The main limitation of a literature review is that various metrics that are used to categorize the different research studies on one topic is not possible. Furthermore, it lacks an analysis and comparison between previous researches.

### 3.2 Case study

First, when regarding the purpose of the different articles that describe their case studies related to the theme ‘reuse of materials after demolition’, there is a clear separation to be made between the types of case studies in relation to their purposes. When regarding the reuse of materials after demolition, the biggest difference is if the entire building is examined as a whole (Pongiglione & Calderini, 2014), or if all the different materials are examined individually. (Tam, 2011) In the first example, the case study can give information that is particularly useful for buildings that are kind of similar to the ones that are being studied, while in the second example, a study into material specifics is conducted.

One of the advantages that is explained thoroughly through all the case studies, is that they provide excellent case related results, which can be applied directly in the field when regarding similar cases. Further specifics that can be extruded from the case studies in relation to material characteristics, are sometimes even more useful, because these results can be used in a more broad sense of building types. (Thormark, 2000)

Another advantage that came up, was the information about cost-efficiency that can be gained through the examination of case studies. (Guy, 2000) When dealing with practical situations, the theoretical knowledge can be tested, and thus it can serve as proven knowledge about specific cases.

However, it must be said, that the biggest pitfall of these case studies seems to be that the data is cannot be generalized. (Jaillon & Poon, 2014) They relate to specific types of building that have been researched or the specific types of materials that have been used in certain ways.

Furthermore, it should be stated that all the assessment tools that are used in case studies, also have their limitations when regarding the findings. It is important to be aware of these limits when assessing the results in a decision process.

### 3.3 Laboratory experiments

By studying five articles on the reuse of construction materials, in which laboratory experiments is the used methodology, certain characteristics about this research method become clear. In general the purpose of this research method is to examine whether the properties of a specific material change when a specific, predetermined change in the composition of the material or in the conditions in which the material is used or researched is applied. This examination is done either in a laboratory or on site. When the specific, predetermined variable is applied all the other variables are kept unchanged. (Prestes et al., 2012; Galvín et al., 2012; Delay et al., 2007; Bignozzi et al., 2014; Wang & Wu, 2012)

With the help of laboratory experiments very specific information is found on the behavior of some materials after applying the specific change in the experiment. An important strength of this method is the possibility to find out whether it is possible to reuse a specific material and in what extend the behavior of that reused material will be different from the virgin material. (Prestes, 2012; Wang & Wu, 2013; Galvín, 2014) This research method provides information which is directly usable in practice.

The specific information that is provided by this research method is obtained by experimenting on a number of samples. A limitation of the laboratory experiments and also experiments in general is the generalizability of the findings. As the experiments are always based on a limited number of samples, the samples are often not representative for the material in general. (Prestes et al., 2012; Galvín et al., 2012; Delay et al., 2007; Bignozzi et al., 2014; Wang & Wu, 2012) Another limitation is the representativeness of the conditions in the laboratory in relation to the real conditions on site. In laboratories the conditions can be controlled to a very high degrees, while the real context in which the materials will be used are subjected to many uncontrolled variables. In the paper by Delay et al. the difference between results of a laboratory experiment and an experiment on site is researched.

### 3.4 Data analysis

In the five selected articles the method data analysis is based on recorded information such as drawings, specifications, comparison tables and other documents about the reuse of construction materials from different sources with the purpose to propose a further possible reuse of construction materials after demolition. The articles provide a critical examination of the information and propose suggestions for the reuse of materials.

Some articles make use of a very broad overview on the subject. They use the data from very different sources and from very different types, for instance: waste generation through time, waste generation for different building typology, and calculations based on the population (Chini & Goyal, 2012). Extruding the essential information and processing this data allows researchers to create precise and clear benchmarking and recommendations for dealing with the problem. Such a variety of information usage makes this approach very holistic and rich because it explores the subject from different sides. (Chini & Goyal, 2012)

Other articles show another approach that is more narrowed down and focuses on the specific qualities of the reused materials. Researchers collect and analyze the data about certain aspects and give conclusions that could be applied only under certain circumstances and conditions. (Al-mulali et al., 2014) This data is also collected from a wide spread of sources such as manufacturing companies, interviewed constructors, material labs etc. When the data is obtained from case studies a frequently occurring problem is that it is not possible to secure

the same level of documentation, because different types of data might be extruded. This happens in cases where drawings were unavailable or information was provided by third parties by interviewing them. Such inequality in the data types can be the cause for uncertainty in the final analysis. (Skanska, 2011)

## 3.5 Comparison to theory

### 3.5.1 Literature review

In all articles that have been investigated as literature reviews, they have made an attempt to find related works and researches in that specific field and review them. As is mentioned in chapter 2.3.1, the purpose of the literature review is to provide a context for the research and to cover what kind of research has been done before. This is explained thoroughly for each article.

However, the literature reviews are not analyzed and compared together. Furthermore, the strengths and weaknesses of previous literature reviews are not identified here, thus a comprehensive result could not be expected. Another limitation of the investigated literature reviews which can be mentioned is that different research studies are not categorized in relation to the topic of choice. On the other hand, these categories can be beneficial for authors to have a better overview of what has been done before and what needs can be done in the future.

### 3.5.2 Case studies

When reflecting on the similarities in theory about case studies, and the articles that discuss their case studies, a most striking resemblance can be seen in the theory provided by Yin (2003): (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study. This is probably the most important similarity found in the articles concerning this topic, because of the contextual conditions that have proven to be an important factor for the use of the results that were conveyed in the case studies.

Along with the use of multiple data sources which lead to the one “puzzle”, where each piece contributes to the understanding of the whole phenomenon as described by Baxter & Jack (2008) this is how these case studies work, within the articles that have been read about this topic.

‘They have the potential to deal with simple though complex situations and enable the researcher to answer “how” and “why” type questions, while taking into consideration how a phenomenon is

influenced by the context.’ (Baxter & Jack: 2008) Especially the relation with the context and the results is very important for this methodology. As stated in the findings and limitations, context and building specifics are very important when reflecting on the results, and carry great weight when considering the practical use for these results.

### 3.5.3 *Laboratory experiments*

In all the articles the experiments are done in a laboratory with controlled conditions, which makes it possible to keep all the variables unchanged except for the independent variable. According to this, every observed change in the findings of the experiments is logically caused by the independent variable. The cause-and-effect relationship becomes very clear, but the relativity to real conditions decreases.

In the studied laboratory experiments a relatively small number of samples is examined in the experiment. Larger numbers of samples would enhance the generalizability of the findings.

As has been the case in most experiments performed in the studied articles, the samples are composed for the experiment, and are not selected randomly. This makes the results less representative.

As in chapter 2.3.3 is said, the purpose of laboratory experiments is to test a cause-and-effect relationship, which is done in each article very clearly and has resulted in detailed information about the specific relationship.

### 3.5.4 *Data analysis*

By comparing the approaches in the articles with the theoretical part it becomes clear that the method of data analysis is very holistic and often provides precise and reliable results, yet in some cases it has certain disadvantages that can influence the research.

Data can be obtained from different sources and can consist of different types of data like drawings or interviews, recordings, documents etc., but it is important that the same level of documentation takes place. If the analysis is based on the data extruded from case studies it is essential to have the same data type in order to secure accuracy of the final result (Skanska, 2011).

Another liability found through the articles was that in some cases there was not enough data and it was analyzed superficially, which can result in wrong conclusions and reports. (Gamashta & Gumashta, 2006) This same principle might occur in the situation when the used data is not up-to-date. Because then it will not be relevant for the modern situation (Naik & Moriconi, 2005).

It became clear that every research topic demands its own approach in collecting and analyzing data. In some cases the perfect solution would be to use a large variety and different types of data while in others data could be researched based on the specific and narrowly targeted information.

### 3.6 *Comparison between methods*

As mentioned in the previous part, each research method has its own specific purpose, strengths and weaknesses. When deciding what specific research method to use, the purpose of the research should coincide with the general purpose of the chosen research method. In this paper, all considered methods showed a general purpose of examining materials qualities in order to provide suggestion for the reuse of those materials after demolition.

Within this general purpose each article focused on a more specific and narrowed down purpose such as the proposal for the further reuse of materials (literature review, data analysis), the application in different building typologies and material properties (case study), or studying certain materials and its components with a possibility to improve it (laboratory experiments, data analysis).

The strengths of the considered methods can be divided into two groups, one group which gives a broad overview and the other is focused on detailed and specific information. The method literature review is included in the first group. The methods case study and laboratory experiments form the second group, and because data analysis can be a quantitative, qualitative or mixed research method it is included in both groups.

Besides strengths, some weaknesses were found in the studied articles. For literature review and data analysis the most distinctive weakness is the dependency on observations of other researchers, which doubles the subjectivity of the findings. As mentioned before, data analysis can be a quantitative method, which in this case leads to less subjectivity. The methods case study and laboratory experiments share the limitation of generalizability. Results are found by examining a limited number of case studies or a limited number of samples, whereby generalizability of the results is often questionable.

## 4 CONCLUSION

There is a large amount of research methods existing. Therefore, it is important to define the research question clearly and state the purpose of the

research within the research question, which will lead to the selection of the proper method.

Depending on the scale of the question a proper combination of qualitative and quantitative methods should be made. As a result from the analysis on the four reviewed research methods, none of the methods was perfect for researching the reuse of construction materials after demolition. Hence, a solution might be found in the combination of different methods, which in turn will minimize the influence of the different weaknesses. An example of this combination might be a combination of laboratory experiments and literature review in literature on the reuse of concrete.

Further research should be done to define whether a proper combination of methods exists to research the reuse of construction materials after demolition. Strengths from one method when used in combination with another method can compensate for the weaknesses of the last method, which will improve the research.

In the beginning of a research the most advantageous method should be selected according to the purpose of the research. Further additional methods should be selected depending on which limitations of the main method should be compensated.

## ACKNOWLEDGEMENT

This paper is part of the course “Research in Urbanism and Architecture”, which is part of the master Architecture, Building and Planning. The authors thank the University of Technology Eindhoven for giving access to a broad range of academic literature.

## REFERENCES

- Al-mulali, Mohammed Zuhear and Hanizam Awang, H.P.S. Abdul Khalil, Zaid Shaker Aljoumali, 2014. “The incorporation of oil palm ash in concrete as a means of recycling : A review.” *Cement & Concrete – Composites*, no.55: 129-138.
- Baxter, P., & Jack, S., 2008. Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, 13(4), 544-559. Retrieved from <http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf>
- Berg, Bruce L, 2001. *Qualitative research methods for the social sciences*. Needham Heights, MA: Allyn & Bacon.
- Bignozzi, M. C. and A. Saccani, L. Barbieri, I. Lancellotti, 2014. “Glass waste as supplementary cementing materials: the effects of glass chemical composition.” *Cement & Concrete – Composites*, no.55: 45-52.
- Chini, Abdol R. and Nippun Goyal, 2012. “Maximizing Reuse and Recycling of Construction Materials.” *48th ASC Annual International Conference Proceedings*.
- Creswell, J., 1994. *Research Design: Quantitative and Qualitative Approaches*. Thousand Oaks, CA: Sage Publications.
- Del Río Merino, Mercedes and Pilar Izquierdo Gracia, Isabel Salto Weis Azevedo, 2010. “Sustainable construction: construction and demolition waste reconsidered.” *Waste Management & Research* no.28: 118 – 129.
- Delay, M. and T. Lager, H.D. Schulz, F.H. Frimmel, 2007. “Comparison of leaching tests to determine and quantify the release of inorganic contaminants in demolition waste.” *Waste Management journal*, no.27: 248–255.
- Filho, Romildo Dias Toledo and Eduard Koenders, Marco Pepe, Guilherme Chagas Cordeiro, Eduardo Fairbairn, Enzo Martinelli, 2013. “Rio 2016 sustainable construction commitments lead to new developments in recycled aggregate concrete.” *Civil engineering special issue* no.166 (CE6): 28-35.
- Galván, A.P. and J. Ayuso, I. García, J.R. Jimenez, F. Gutierrez, 2014. “The effect of compaction on the leaching and pollutant emission time of recycled aggregates from construction and demolition waste.” *Journal of Cleaner Production*, no.83: 294-304.
- Gamashta, Lalit and Swarna Gumashta, 2006. “Reuse of concrete and masonry waste materials in construction to minimize environmental damages due to quarrying.” *Journal of Environmental Research And Development*, no.1: 65-67.
- Guy, Bradley, 2000. “Building deconstruction: reuse and recycling of building materials.” *Alachua county solid wastes management innovative recycling project program*.
- Guy, Bradley and Scott Shell, 2002. “Design for deconstruction and materials reuse.” *CIB report*, Publication 272: paper 15.
- Jaillon, Lara and C.S. Poon, 2013. “Life cycle design and pre fabrication in buildings: A review and case studies in Hong Kong.” *Automation in construction*, no. 39: 195-202.
- Kawulich, Barbara B, 2004. “Data Analysis Techniques in Qualitative Research.” *Journal of Research in Education*, no.14(1): 96-113.
- Lewis-Beck, M.S. and A. Bryman, T.F. Liao, 2004. *Encyclopedia of Social Science Research Methods*. London: SAGE Publications, Inc.
- Marie, Iqbal and Hisham Quiasrawi. 2012. “Closed-loop recycling of recycled concrete aggregates.” *Journal of cleaner production* no.37: 243- 248.
- Miles, M. B., & A. M. Huberman, 1994. *Qualitative data analysis: An expanded source book* (2nd ed.). Thousand Oaks, CA: Sage.
- Naik T.R. and G. Moriconi, 2011. “Environmental-friendly du

- nable concrete made with recycled materials for sustainable concrete construction.” *CANMET/ACI International Symposium on Sustainable Development of Cement and Concrete*.
- Patton, M., 1990. *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.
- Pongiglione, M. and C. Calderini, 2014. “Materials savings through structural steel reuse: A case study in Genoa.” *Resources, conservation and recycling*, no. 86: 87-92.
- Prestes, S.M.D. and S.D. Mancini, A. Rodolfo Jr, R.C. Keiroglo, 2012. “Construction and demolition waste as a source of PVC for recycling.” *Waste Management & Research*, no.30: 115-121.
- Race, Richard and Lisa M. Given (ed), 2008. *The SAGE encyclopedia of Qualitative research methods*. Thousand Oaks, CA: Sage.
- Skanska, [www.preservationnation.org](http://www.preservationnation.org), 2011. “The greenest building: quantifying the environmental value of building reuse materials quantification methodology.”
- Stake, R. E., 1995. *The art of case study research*. Thousand Oaks, CA: Sage.
- Strauss, Anselm L. and Juliet M. Corbin, 1998. *Basics of Qualitative Research : Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks, CA: Sage.
- Tam, Vivian W. Y., 2011. “Rate of reusable and recyclable waste in construction.” *The open waste management journal*, no. 4: 28-32.
- Thormark, C., 2000. “Environmental analysis of a building with reused building materials.” *International journal of low energy and sustainable buildings*, no.1, (2000).
- Wang, W. and C. Wu, 2013. “Benefits of adding rice straw over coke powder to cement mortar and the subsequent reduction of carbon emissions.” *Construction and building materials*, no.47: 612-622.
- Vefago, Luiz H. Maccarini and Jaume Avellaneda. 2013. “Recycling concepts and the index of recyclability for building materials.” *Resources, Conservation and Recycling* no.72: 127 - 135.
- Yin, R. K., 2003. *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.

# Post-emergency reconstruction of a city

G.M. Ion, V. Bakker, J. Gerrits, R. Valk & M. Wisse

*Urban Design and Planning, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Disasters have always been a common occurrence in the past, but the effects have nowadays increased drastically, leaving a trail of destroyed cities behind. The rebuilding of these cities is an enormous challenge for many reasons, and has inspired numerous researchers to investigate parts of the topic redeveloping a city after destruction, using several different methods.

This paper aims to understand the different research methods in the literature of post-disaster city redevelopment, with a specific focus on describing and comparing both the implications of the methods in collaboration with the topics and the ways in which the method has helped to achieve their results. Through reviewing the existing literature on the topic, characterizing the main research methodologies used in the selected literature, evaluating and comparing the used methods with regards to their strengths and weaknesses, and finally assessing the most suitable approach, this research will answer the question of '*Is there a certain method which is the best suited to research the reconstruction after a disaster topic?*'. The final goal of this research is to help researchers to prioritize methodologies, which in turn will assist the development of better and faster solutions for future emergency situations.

Methodologically, 28 papers were selected and sampled based on different research methods. The methods of these publications were described, categorized, and systematized in a literature grid in order to compare and assess the best ways to research an emergency situation.

Concluding, there isn't a best method to research the reconstruction after a disaster. Which method is the most suited is highly influenced by which part of the recovery is researched, what kind of research questions is focused on, a what, why or how question, and in which time frame the disaster currently is.

**KEYWORDS:** *Research Methods, Reconstruction Strategies, Disasters, Recycle*

## 1 INTRODUCTION

Disasters have always been a common occurrence, but in the last centuries the impacts of the disasters has increased drastically, due to changes in social, ecological and morphological environment of modern societies leaving a trail of destroyed cities behind (Than, 2005; Leaning & Guha-Sapir, 2013). The rebuilding of these cities is an enormous challenge for many reasons, including the large amount of debris and the management of these wastes (Ismail, Majid, Roosli & Samah, 2014; Boano & García, 2011). Research concerning the re-planning and reconstruction of cities affected by

post-emergency situations tries to find affordable and efficient solutions with minimum environmental consequences to the issues of temporary housing, participatory reconstruction, waste management, and impact of such wastes.

The papers focusing on recovery after a disaster has provided exceptional amounts of research about the topic, all using their own preferred method to achieve their required results. The different methods used in collaboration with the topic, post-disaster recovery, is the subject of this paper. The aim for this paper is not to research the topic itself, but to provide a basic understanding on how reconstruction after disasters can be researched using different methods, and what the benefits and weaknesses are of using a certain method for a certain aspect of

reconstruction, disaster, timeframe or geographic location. This should allow experts, who wants to provide useful information for redeveloping and recovery of a city after a disaster, a better starting to point to acquire the answers to their research questions. Indirect this should lead to faster and more durable solutions for reconstruction after a disaster. This last aspect is why this paper and the research on the different methods in collaboration to the topic ‘reconstruction after disasters’ is important; it will create a basic research framework which will speed up and improve the quality of the research and the linked recovery strategies for cities facing post-disaster conditions. To generate this research method framework the question ***‘Is there a certain method which is the best suited to research the reconstruction after a disaster topic?’*** has to be answered. This is achieved by answering the following sub-research questions:

*Are different methods used for different aspects of reconstruction after a disaster?*

*Is there a relation between a method and a specific disaster?*

*Is there a relation between a method and a specific disaster type?*

From pre-research knowledge a hypothesis on the research and sub-research questions can be formulated; there is no best method to research the reconstruction after a disaster in general, but depending on what aspect the research is focused on, a certain method could be more favorable over another. This depends, not only on which aspect is researched, but on the specific disaster too. Research on a disaster which recently happened is more suitable for a direct approach in the form of observation, interviews or onsite monitoring, while a disaster which happened more in the past is more suited for an indirect approach in the form of literature review or a case study. At last a difference in methods used depending on the type of disaster isn’t expected, because disasters have in general the same challenges; a lot of destruction, debris and the need for basic human rights, like shelter, food and water. (Diefendorf, 2009)

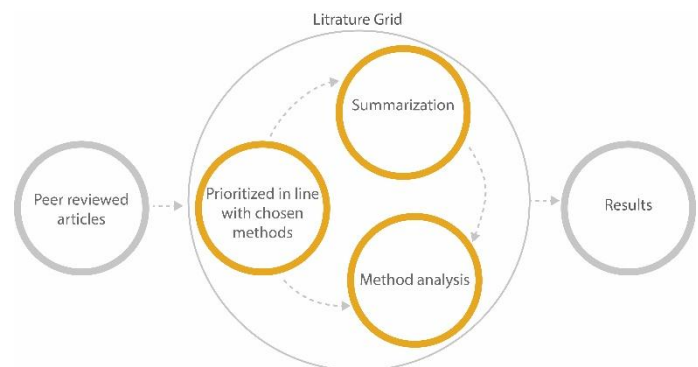
## 2 METHODOLOGY

### 2.1 Data collection

In order to define the best research methods for rebuilding after disasters, this research is based on the in depth analysis of 28 articles published in peer reviewed journals. All selected articles deal directly with the problem of reconstruction of a city post disaster.

Methods were preselected in contrasting categories. Case studies, comparative analysis, observation, monitoring and interviews, were prioritized, as they offer the necessary information in both global and detailed context. Case studies help describing, understanding and explaining (Yin, 2003), interviews give clear insides and different perspectives in the context of the disaster, observation focuses on really specific parts of the emergency and monitoring is related with detailed research parts but for a longer time.

Articles were sampled from academic databases and web search engines like Google Scholar, Science Direct, Directory of Open Access Journals, Scopus, Web of Science. The sample was limited to



six articles per method, and within methods articles were selected for maximum variability: for their differences in topic (within the scope of this research), context, and approach. The main requirement for the articles (other than topic and research methodology) were two: all selected articles are part of peer-reviewed journals, and all of the articles are based on empirical research, rather than theory, providing a grounding in reality for the observations and arguments. (figure 1)

Figure 1. Methodology

### 2.2 Analysis

After gathering and summarizing all the information, in order to compare and state a conclusion, a literature grid was designed, based in the work of Yacobucci (2012).

A literature grid is defined as a heuristic to assist in the writing of literature (Yacobucci, 2012). It consists of several columns that help to organize, summarize and visualize the information coming from different sources. Appendix 1 contains a copy of the instrument used in this research.

The first five columns describe general information of each article (author, title, year, month, city) – the aim is realizing how new is the information, where takes place and if some authors appear repeatedly in the found literature and also help in future research to see if this author has published again in this research area.

The next two columns define the publication details for the article, which in turn provides information regarding its credibility– knowing the publisher and type of source, that is, knowing if whether the paper has been published in a well-known journal, is an important proxy for both validity and reliability of the paper, has important journals all have peer review processes.

The next element of the literature grid, research design, is important for the authors of the paper to discover the best method to study the research topic (Yacobucci, 2012).

Dependent and independent variables are very important in doing a correct research (Yacobucci, 2012) and allows the articles that use the same variables to be quickly compared, while at the same time give a clear and fast view on the researched parameters.

### 3 RESULTS

#### 3.1 Case study

The research method of case study was documented based on six articles that bring together different examples of earthquake disasters in different cities. The focus is directed on multiple subtopics: urban planning and design for post-disaster temporary housing (Johnson, (2007), Liu, Lin, & Wang, (2014)), the importance of using recycled materials in temporary housing (Arslan, (2007), Arslan, & Cosgun, (2008)) and alternative design of temporary houses that suits better for both people and environment (Eren, (2012))

When dealing with “how” and “why” questions, using case studies is the preferred strategy, especially when the focus is on contemporary phenomenon within real-life context. Case study can be seen to satisfy the three tenets of the qualitative

method: describing, understanding and explaining. (Yin, 2003).

By analyzing these case studies, one can learn not only the context of disasters but also the potentials of using the recycle materials, the possibilities of building focusing on sustainability and also protecting the environment and the people in the process, by re-using temporary housing.

A positive aspect of these examples is credibility. In case studies the data collected is normally a lot richer than other research methods and that’s why, to strengthen the arguments stated in the reviewed case studies, more than one research method has been used. Another aspect that gives credibility is fact that examples of strategies and urban design of temporary housing described and argued, have been already implemented so observations and conclusions are based on a real case.

When talking about case studies the main disadvantage is that the data collected cannot be necessarily generalized. So, when talking about re-used materials in building temporary houses in a certain city, one could say that it is not necessarily possible to replicate the concept in another city but what is possible is to understand the context and learn the potentials.

Another downside is that although all the articles state in the beginning that the case studies combine strategies of development after disaster with design, in some cases the accent is focused more on the design letting aside the importance of economy in the process, which most of the times is the decisive factor in this matter.

Each case study, as each method has positive and negative aspects but in the end, these five were selected because they state important aspects of building after disaster that could help the future researchers interested in this subject.

#### 3.2 Interviews

The six articles that have been studied are researches using interviews after different disasters. Most of these articles are about the way governances and organizations deal with the reconstruction after disasters. (Guarnacci, 2012; Hooper, 2014; Shaw & Nakagawa, 2004) What kind of reconstruction and rehabilitation program do they use and in what level do they participate in that process? (Davidson, 2007) Other articles are aimed at reuse and recycle potentials (Arslan & Cosgun, 2008) and also deconstruction program which allow people to give their ruined house a dignified end. (Denhart, 2009)

By interviewing main actors and organizations of these post-destruction programs data can be gathered about how these projects work (Davidson, 2007; Shaw & Nakagawa, 2004), but also can be measured if these programs work well in practice by conducting interviews with disaster victims or program participants. When people are not satisfied about how these organizations act at disaster recovery they can point it out in the interviews (Guarnacci, 2012; Arslan & Cosgun, 2008).

A general weakness of the interview method is that there are no guidelines or rules about how these interviews should be conducted, so it is very hard to compare different researches that did not use the same open-ended and close-ended questions. In these six articles open-ended questions have been used to gather qualitative information, these questions vary in each article which make comparing hard. Another weakness is that the answer of respondents can change between different interviewers, due to the behavior of the interviewer. It is important for the interviewer that he is as neutral as possible when conducting the interview.

The fact that interviews could be held at any place is a strength of this method, in this way researchers can conduct experience interviews with dwellers at every site (Arslan & Cosgun, 2008) and also with organizations (Hooper, 2014) and building owners (Denhart, 2009) without the need of the participants to travel towards the interviewer. Extra positive aspect is that the respondent can use the interview to answer with additional details that normally would not be taken into account.

Conducting interviews can be a strong method to express data and feelings of the participants (Denhart, 2009), although due to the difference in interview protocol that has been used in these articles it is hard to compare different interviews.

### 3.3 Comparative Analysis

The five different articles address rebuilding after different types of disasters, though the biggest part of the articles focuses on natural disasters (Lindell & Wu, 2004; Edgington, 2011; Maly et al., 2012). A minor part talks about destruction after war (Diefendorf, 2009). As to the rebuilding, some articles focus more on housing (Lindell & Wu, 2014; Maly et al., 2012), others more on the strategies and planning after the devastation of cities or parts of them.

To evaluate how successful the rebuilding is, it is necessary to have a context. In this field of research the context exists of other places that have been

rebuilt after devastation. To learn which part of the rebuilding went well and which part did not, one needs to know which parts can be improved next time.

One of the main features of the comparative analysis, is that it is a broad, general method (Enli, 2010). This can be seen as a strength, because the method can be used in many evaluations of the rebuilding. But at the same time it can be seen as a weakness because the method is so broad, there are not many rules and clear guidelines. Sometimes it occurs each case has been researched by different researchers, like in the article of Kendall and Wu (2014). A part of this article is written in the USA and tells about the earthquake in the USA. The other part is written in Taiwan about the earthquake in Chi-Chi. So on the one hand, it would be really useful to have more clear guidelines so that methods of research will be as reliable as possible. Because a lot of indefinable parameters (e.g. culture) have influence on the rebuilding itself, but also on the research on the rebuilding. On the other hand, in Diefendorfs (2009) article also two rebuilding processes have been researched. As he explains this is legit because of the big influence it had on the current German cities. They started with a *tabula rasa* after the war, as well as New Orleans after Katrina.

### 3.4 Observation

The five articles all focus on a different subtopic; waste management (UNEP, 2012), donor driven reconstruction (Chang, 2007), emergency sheltering (Tai & Hou, 2005) (Arslan, 2008) or a rebuilding strategy (Liu, 2014). While these topics seem to be widely spread they all share two factors in coming; they are all focusing on a small specific part of rebuilding after disasters and they are all focusing on a small geographic location, two aspects perfectly suited for the observation method.

These two aspects are both the strengths and weaknesses of the observation method and are clearly noticeable in the articles. It's a strength if the topic is a short period, stand-alone subject which can be researched with minimal influences of the past or the future, like the reason behind the lack of donor driven materials, mainly influenced by the current affected parties (Chang, 2010) or the misuse of materials and equipment during deconstruction of emergency housing, only influenced by the current activities and participants (Arslan, 2008).

It's a weakness if the topic is a small aspect of a much larger subtopic or process, like the current

progress in waste disposal after the tsunami in Japan in a long term waste management strategy (UNEP, 2012), or evaluation of the urban design strategy in Wenchuan Country using observation to research the situation after completion. While it generates accurate information for this time, extra methods or extra observation periods are needed to answer the main question.

As last the last article is a clear threat example of using observation as the main method. The article compares the researchers' own new eco house design to current emergency shelters (Tai, 2005), which counters the unbiased view of 'outsider' observation method. Another threat of observation method, showable in all the five articles, is sometimes the too specific information, but which could be seen as an opportunity too; it's a starting point for extra research on the subtopic on a different location (like the destruction of emergency shelters (Arslan, 2008)) or to provide really accurate, specific information to make important decisions in their current recover strategy (like the donor-driven research (Chang, 2010)).

### 3.5 (*Qualitative*) Monitoring

Five articles considering (quantitative) monitoring have been reviewed. All five focus on natural disasters, one evaluates hurricane Katrina (Burton, Mitchell & Cutter, 2011), three research a certain earthquake (Wang, Chen & Li, 2012; Contreras, Blaschke, Kienberger & Zeil, 2014; Powell, Harding, Thomas & Mora, 2011) and one suggests a framework and showcases it using an earthquake (Chang, 2010). The paper by Powell et al. (2011) actually explains two researches about the same earthquake. All papers cover research that tries to assess 'the level of recovery at multiple points in time' and/or 'the time needed for recovering to a certain level'. Because of the inherent timely aspect of monitoring studies, the prior two are generally two sides of the same coin.

Within the framework of a monitoring studies, different research methods are used. The reviewed papers all use a single case to get data about ('mono case study'). The use of case studies is strongly related to the very nature of disasters of course. Data collection methods however differ between the papers, covering photographic monitoring, general fieldwork and use of surveys, observations, remote datasets and readily available statistical indicators. Judging from these papers, however the data collection method has little influence on the type of

research, since in general all papers cover descriptive research.

Judging from the five articles it is apparent immediately that the ability to investigate recovery over time, is a major strength of monitoring, as all five utilize that aspect to answer their research question(s).

As Chang (2010) puts at the core of her framework, and both Powell et al. (2011) and Burton et al. (2011) point out too, monitoring studies using certain data collection methods can be used for almost real-time (very rapid) recovery process investigation. This is a major opportunity for monitoring studies in aiding decision-makers in post-disaster periods. Both Chang (2009) and Powell et al. (2011) explain the need for rapid information, also referencing a multitude of previous literature.

One major downside of monitoring is that it doesn't seem to be particularly suitable to answer 'why' and 'how' questions, and only focusses on 'what' questions. Downsides of the methods used in the articles vary and may not be inherent to monitoring. Some research, as Burton et al. (2011) lacks social indicators to assess the recovery progress. But this is more related to the data collection method, then to the use of monitoring.

Potentially more structurally related to monitoring (and found multiple times in these articles) is the lack of consideration of pre-disaster factors. If not tackled correctly, this definitely is a weakness of monitoring methods for the disaster recovery process. It could cause the researchers to overlook the influence of pre-disaster indicators on the recovery process. Burton et al. (2009) is a clear example of this.

## 4 CONCLUSIONS

A synthesis of the findings from the five different research methods offers the ability to draw some conclusions related to the planning and design of cities after a disaster. These conclusions are presented below as direct answers to the research questions.

### 4.1 *Are different methods used for different aspects of reconstruction after a disaster?*

From the 28 articles it can be clearly concluded that there is a relation between a specific aspect of reconstruction after a disaster and what method the researchers chose to investigate to acquire the required results. What method is the most suited

depends on what kind of research question has to be answered. A 'what' question is the best suited for a direct approach using observation (what is happening now?), interview (what policy is used?, or what are people experiencing?) or monitoring (what was the effect of the disaster on ...?). A 'How or why' question is favorable by a case study or a comparing analysis, due to the requirement of less detailed but wider spread information.

The difference in method in relation with the aspects is clearly noticeable in the articles that use several methods. The article by Liu et al. (2014) focused on how the city used the opportunities generated by the catastrophic destruction of the city to overcome the challenges the city was facing before the disaster. Observation and interviews were used to answer the 'what', what changed, question in the complete answer to find the answer on the 'why and how' question.

#### 4.2 Is there a relation between a method and a specific disaster?

Choosing a method for the research highly depends on the timeframe of the disaster. In general each method can be used for every disaster, but some methods are more suited for specific parts in the recovery process. Figure (2) highlights the relation between the timeframe and a specific method. Observation and monitoring are the most suited methods to research a part of recovery while it's still happening, with observation for right now and only now and monitoring from the past (or now) till a specific time in the future. Case studies and comparing analysis at the other hand are better suited for evaluating a part of recovery after it has been finished. Interviews at last, while be able to used during recovery, is mainly used right after the disaster to describe experiences of the involved people during the recovery.

Figure 2: Relation between timeframe and specific method.

#### 4.3 Is there a relation between a method and a specific disaster type?

In the hypothesis a relation between a specific method and a specific disaster type wasn't expected, because every disaster type creates the same challenges, namely destruction, a lot of debris and waste, and the need for basic human needs and recovery. It's true that different disaster types create different degrees of challenges, but they all have the same challenges. This hypothesis is reflected in the

28 articles, with one article mentioning this in particular:

*"It is common that, when trying to describe natural catastrophes, both victims and observers turn to images of war to spark the imagination, declaring that a damaged town or street looks as if it had been hit by bombs."* (Diefendorf, 2009)

From the above three sub-research questions the main research questions can be answered.

#### 4.4 Is there a certain method which is the best suited to research the reconstruction after a disaster topic?

From the three above answered sub-questions the answer would be no, there isn't a certain method that is the best suited to research the reconstruction after a disaster topic. The preferred method highly depends on what type of question the research is focusing on (What, why or How?) and what timeframe the researched disaster is in. A direct approach in the form of observation and monitoring, is best suited for a part of the recovery process that is still happening, and to answer the 'what' questions; what is happening, what have they done, what are the reasons behind there struggling, what was the effect of the disaster etc. Questions that can be answered by using information from a snapshot or a relative short period in a specific area. Monitoring (especially in combination with certain data types) can also be used for (long term) reconstruction progress tracking.

The more indirect approaches, case study, comparison analysis and interviews, are more suited for evaluating parts of recovery that already happened, with more focusing on the why and how



questions then the what questions. Why did they chose this recovery strategy, how they did arrived to this point, how did they tackled their problems, etc. Questions that can be answered by less detailed but more generalized and spread information for a larger area and a larger period of time.

The conclusion made in this paper is, as last note, not that black and white in reality. A research often has the need for several methods for several aspects of their research question, for example the article by Liu et al. (2014) combined a case study with

observations, surveys and interviews, or has the need to use a less favorable method, according to the conclusion made in this paper, because of personal or technical difficulties.

## 5 RECOMMENDATIONS

In this paper a first attempt has been made in reviewing the articles related to the topic "Post-emergency reconstruction of cities". With this first attempt 28 articles were selected and reviewed using methodology as leading theme. While this provided excellent information and conclusion for post-emergency situation, only a small amount of papers were selected. For future research it is recommended to use a larger sample size.

After the analyzing process, it was concluded that five methods were not sufficient enough to generate a complete and accurate answer, thus more research has to be done using as many methods as possible.

Also, regarding the topic of the paper, it has to be noted that in our research the sub-topic of the papers were constantly changing which could alter the required conclusion, because several variables, namely the method, the sub-topic and the specific disaster, are interconnected, thus changing one will affect the others, altering the accuracy of the results.

So in conclusion, the future research should gather more articles, use as many methods as it's possible in order to strengthen the verity of the information.

## ACKNOWLEDGEMENTS

The researchers underpinning this paper are grateful for the guidance and advice provided by Annemarie Peters van den Heuvel Sukanya Krishnamurthy, Daan Lammers and Ana R. Pereira Roders.

Also, this research was possible with the information provided by the Technical University Eindhoven which we want to thank by this means.

## REFERENCES

- Arslan, H. 2007. Re-design, re-use and recycle of temporary houses. *Building and Environment*, 42(1), 400-406.
- Arslan, H. & Cosgun, N. 2008. Reuse and recycle potentials of the temporary houses after occupancy. *Building and Environment*, 43(5), 702-709.
- Arslan, H. & Cosgun, N. 2007. The evaluation of temporary earthquake houses dismantling process in the context of building waste management. *International earthquake symposium.8*. Kacaeli: Kacaeli University.
- Boano, C., & Garcia, M. (2011). Lost in translation? The challenges of an equitable post-disaster reconstruction process: Lessons from Chile. *Environmental Hazards*, 10(3-4), 293-309.
- Burton, C. Mitchell, J.T., Cutter, S.L. 2011. Evaluating post-Katrina recovery in Mississippi using repeat photography. *Disasters*, 35 (3), pp. 488-509.
- Chang, S.E. 2010. Urban disaster recovery: A measurement framework and its application to the 1995 Kobe earthquake. *Disasters*, 34 (2), 303-327.
- Contreras, D., Blaschke, T., Kienberger, S., Zeil, P. 2014. Myths and realities about the recovery of L'aguila after the earthquake, *International Journal of Disaster and Risk Reduction*, 8, 125-142.
- Davidson, C. 2007. Truths and myths about community participation in post-disaster housing projects. *Habitat International*, 31(1), 100-115.
- Denhart, H. 2009. Deconstructing disaster: Psychosocial impact of rebuilding deconstruction in Post-Katrina New Orleans. *Cities*, 26(4), 195-201.
- Diefendorf, J. 2009. Reconstructing Devastated Cities: Europe after World War II and New Orleans after Katrina. *Journal of Urban Design*, 14(3), 377-397.
- Edgington, D. 2011. Reconstruction after natural disasters: the opportunities and constraints facing our cities. *Town Planning Review*, 82(6).
- Enli, G.S. 2010. Comparative Analysis and Case Studies, Department Media and Communications, University of Oslo.
- Eren, O. 2012. A Proposal for Sustainable Temporary Housing Applications in Earthquake Zones in Turkey: Modular Box Systems Applications. *Gazi University Journal of Science*, 25(1), 269-287.
- Guarnacci, U. 2012. Governance for sustainable reconstruction after disasters: Lessons from Nias, Indonesia. *Environmental Development*, 2, 73-85.
- Hooper, M. 2014. Organizational approaches to post-disaster reconstruction in Haiti. *International Journal of Disaster Risk Reduction*, 10(A), 270-280.
- Ismail, D., Majid, T., Roosli, R., Samah, N. (2014, December). Project Management Success for Post-disaster Reconstruction. *Procedia Economics and Finance*, 18, 120-127.
- Johnson, C. 2007. Strategic planning for post-disaster. *Disaster* 2007, 31(4), 435-458.
- Lauritzen, E.K. 1998. Emergency construction waste management. *Safety Science* (30(3), 45-53.
- Leaning, J., Guha-Sapir, D. (2013, November). Natural Disasters, Armed Conflict, and Public Health. *The new England journal of medicine*.
- Lindel, J. Y., & Wu, M. K. 2004. Housing Reconstruction After Two Major Earthquakes: The 1994 Northridge Earthquake in the United States and the 1999 Chi-Chi Earthquake in Taiwan. *Disasters*. 28(1), 63-81.
- Liu, L., Lin, Y., Wang, S. 2014. Urban design for post-earthquake reconstruction: A case study of Wenchuan County, China. *Habitat International*, 41, 290-299.
- Maly E., K. T. 2012. An Incrementally Expandable Core House for Disaster Reconstruction: Two Cases in

- Yogyakarta, Indonesia after the Central Java Earthquake. *Memoirs of the Graduate Schools of Engineering and System Informatics Kobe University* . (4)
- Maly E., S. Y. (2012). *Toward People-centered Post-Disaster Housing Recovery in Tohoku: Learning from examples of transitional housing in Yogyakarta, Indonesia and Mississippi, United States*. Kobe, Japan.
- Powell, F., Harding, A., Thomas, J., Mora, K. 2011. Rapid response research in christchurch: Providing evidence for recovery decisions and for future theoretical research. *Australasian Journal of Disaster and Trauma Studies*, 2011 (2), pp. 26-34.
- Programme, U. N. 2012. *Managing post-disaster debris: the Japan experience*. UNEP.
- Shaw, R., & Nakagawa, Y. (2004, March). Social Capital: A Missing Link to Disaster Recovery. *International Journal of Mass Emergencies and Disasters*, 22(1), 5-34.
- Tai, N., & Hou, J. 2005. Eco house: affordable and sustainable solution for post-earthquake reconstruction. Conference on sustainable building South East Asia. *Kuala Lumpur: College of Architecture and Urban Planning*, University of Washington.
- Than, K. (2005, October). Scientists: Natural Disasters Becoming More Common. *Live Science*.
- Wang, Y., Chen, H., Li, J. 2012. Factors affecting earthquake recovery: The Yao'an earthquake of China. *Natural Hazards*, 64 (1), 37-53.
- Yacobucci, P. 2012. Introducing the literature grid: helping undergraduates consistently produce quality literature reviews. *Buffalo State College*
- Yin, R. 2003. Case study research design and methods. SAGE Publications. *Applied Social Research Methods Series*. (5)

# Architectural transformation as a solution for vacant offices in the Netherlands

J. Snoeijen, L. Khuat Duy, R. van de Gevel, M. Schols, J. Bijpost

*Architecture, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** While the number of vacant office buildings in the Netherlands increases, conventional building strategies seem unable to provide a clear defined answer to this arising vacancy problem. Despite the fact that there is vacant building space available, there is still a demand for new housing. The redevelopment process of vacant office buildings consists of too many aspects requiring knowledge currently not present at the different parties involved in the building process. The Dutch market therefore seems to be in a desperate need for a clear vision on the potential of different redevelopment methods. Over the last decade this need has been acknowledged by different authorities such as universities, municipalities and commercial organizations, which have responded with different research projects into possible solutions.

The goal of this literature review is to provide a clear overview of the most common research methods used to investigate the potential for redevelopment of vacant office buildings and evaluate their capability to provide an insight into the topic of vacant office buildings in the Netherlands. This will eventually enable us to answer our research question: How do various research methods contribute to the present knowledge of architectural transformation as a solution for vacant offices in the Netherlands?

The sources evaluated in this research have been collected by subsequently gathering sources from a wide variety of different methodologies, reducing the scope to the most promising research methods and providing an in depth exploration of the available literature concerning these methods. The final research methods are limited to measurements and statistics, interviews, surveys, qualitative and quantitative case studies.

A literature grid was built in order to compare the different methodologies and reflect on their strengths and weaknesses. Eventually the conclusions about potential solutions for vacancy of office buildings in the Netherlands and the different methodologies, used to research the problem of vacant office buildings, are presented.

**KEYWORDS:** *Vacancy, Office buildings, Transformation, Refurbishment, New housing, Sustainability*

## 1 INTRODUCTION

Whether the cause is considered the economic crisis or the unhealthy and saturated real estate market prior to the crisis<sup>1</sup>, vacancy has become an important topic in today's real estate market and greatly influences the total building industry. Especially the office market seems to be in big trouble due to high

vacancy rates.<sup>2</sup>

The Netherlands appears to have the dubious honor of having the highest office vacancy rates in Europe.<sup>1</sup> Whether the cause lies in the poor building physics, the inadequate calculation of space, or the incapacity of the building to easily be adapted to host a different activity, doesn't change the consequences. Large empty buildings not only constitute a financial pit for their owner, they also negatively impact their neighborhood, as they are

<sup>1</sup> Janssen-Jansen, L. (2013, Februari 20). Vastgoed blijft echt verzadigd, *NRC Handelsblad*

<sup>2</sup> Remøy, H., Voordt, T. (2007). *Conversion of office buildings; A cross-case analysis based on 14 conversions of vacant office buildings*, Delft: Delft University of Technology

surrounded by deserted spaces. These undesirable situations demand a strategy. The vacancy problem will keep growing if the Netherlands does not demolish these buildings or starts to invest in the architectural transformation of existing vacant buildings to spaces that do apply to the current and future demands of its users.<sup>3,4</sup>

The step towards a Dutch building industry that is capable and willing to transform vacant buildings asks for a wide range of analyzes. The cause of the vacancy has to be determined in order to understand its roots and its long-term effects. By creating an overview of influencing factors on the suitability for transformation, various factors can be distinguished and further analyzed. Opportunities and risks of a transformation that concerns the building must be investigated in advance to determine whether the investment for transformation will be worthwhile. The investigation must be conducted case by case to determine what the best option for a certain building is. Post-transformation evaluations and measurements of the performances will further validate or invalidate the models and assumptions used for the investigation, and eventually point towards possible improvements.<sup>5</sup>

As the field of different researches into the transformation of office buildings is rather broad, there are various types of methodologies that can be used to research the various aspects. Five research methods; interviews, questionnaires, measurements and statistics, qualitative case studies and quantitative case studies, will be evaluated for their use and value in relation to the research on transforming vacant offices. Every method will give different insights into the topic and will have its own strengths and weaknesses. In this article the different methods that have been used will be described in regard to the topic of transforming vacant offices.

Given the social, political, environmental and financial problems caused by vacancy, the following question arises: *How do various research methods contribute to the present knowledge of architectural transformation as a solution for vacant offices in the Netherlands?*

<sup>3</sup> Leegstand kantoren. Retrieved January 7, 2015, <http://www.rijksoverheid.nl/onderwerpen/leegstand-kantoren>

<sup>4</sup> Leegstand winkels en kantoren neemt verder toe. Retrieved January 5, 2015, <http://www.pbl.nl/nieuws/nieuwsberichten/2014/leegstand-winkels-en-kantoren-neemt-verder-toe>

<sup>5</sup> Aggenbach, V., Latuperisa, I. (2013), Rapportage van het eerste jaar Expertteam Kantoortransformatie. Agentschap NL, Den Haag.

## 2 METHODOLOGY

At the start of this project different methods of collecting sources have been applied. Eventually the majority of the used literature was found by using multiple online academic search engines such as Google Scholar and Scopus, and by the use of resources available at the library of the University of Technology Eindhoven. The collection of resources at the beginning of the study consisted of a wide variety of different methodologies to ensure an exhaustive review. Literature consisting the most relevant information as well as a clear research method were chosen in order to create a useful literature grid. After thoroughly evaluating the different methods that were present, the scope of the literature grid was reduced to the five most promising methodologies. To qualify for a certain research category, the articles or books have to pursue one of the following definitions, consisting to their methodology, as proposed by various different authors:

Method	Description
Interviews	<i>The qualitative research interview seeks to describe and understand the meanings of central themes in the life world of the subjects. The main task in interviewing is to understand the meaning of what the interviewees say.</i> <sup>6</sup>
Questionnaires	<i>A questionnaire consist of a number of questions printed or typed in a defined order on a form or set of forms.</i> <sup>7</sup>
Measurements and statistics	<i>A summary (means, mode, total, index, etc.) of the individual quantitative variable values for the statistical units in a specific group (study domains).</i> <sup>8</sup>
Case studies	<i>“an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used”</i> <sup>9</sup>

<sup>6</sup> Kvale, S. (1996). Interviews An Introduction on to Qualitative Research Interviewing. Sage Publications.

<sup>7</sup> Kothari, C. (2004). Research Methodology Methods & Techniques. New age international publishers.

<sup>8</sup> Eurostat. “Assessment of Quality in Statistics: Glossary”. Working Group.

<sup>9</sup> Yin, R. K. (1984). Case study research: Design and methods. Newbury Park, CA: Sage.

For our final selection of methodologies a distinction has been made between qualitative and quantitative case studies.

### 2.1 Interviews

The research methodology 'interviews' is used to give a qualitative description of a complex situation. The method can be divided in two categories; structured interviews and semi-structured interviews. A structured interview uses a strict list of questions which does not allow one to divert, while a semi-structured interview uses some themes which can be explored during the interview. This results in a more freely interview and allows new ideas and details to be brought up during the interview. A weakness of this last method is that the quality and the usefulness of the results of the interview depend largely on the competence of the interviewer. The structured interview differs from a questionnaire by using an interviewer to ask the questions. The interviewer can make a good estimation if the respondent interprets the questions well. However, this method is also more time costly and expensive because of the use of an interviewer.

### 2.2 Questionnaires

The types of questionnaires or surveys that can be distinguished are surveys with a descriptive design or an analytic design.<sup>10</sup> Surveys or questionnaires with a descriptive design ask the 'how many'-question, whereas the analytic survey designs focus on the 'why'-question and therefore focus on causes and effects. The questionnaire is a type of discrete choice experiment, which reduces the answers that respondents can give to questions to a limited amount of specified answers.

The strength of the questionnaire is the speed with which data from multiple respondents can be gathered. The weakness of this method however might be its characteristics as a discrete choice experiment; the discrete choices might not completely correspond with the precise opinion of the respondent. The methodology is also dependant on the interpretation of the respondent and the quality of the evaluation of the respondent.

### 2.3 Measurements and statistics

The sources that belong to the category of

<sup>10</sup> Oppenheim, A., (1992). Questionnaire, design, interviewing and attitude measurement. London: Pinter Publishers. pp.7-29

measurements and statistics primarily collect quantitative data and provide a more detailed and substantiated insight on the severity and type of the problem. Sources generally describe the interpretation of the data and often illustrate them with graphs and tables. This information, gathered and interpreted by research agencies to provide statistical conclusions, are often complemented by interviews with experts. Although experts might provide recommendations and solutions to the problem, these are not the primary purpose of this descriptive research method.

An advantage of this method is that the collected data can simply be applied in other researches, for instance as a starting point for further research. The limitation of this research method is, above all, the described spectrum. The amount of collected data is important in this method, relatively small numbers of data sources are not analyzed, since too little data can result in an unreliable outcome of statistical analysis. A lack of data and the inability to extract data of certain subjects, which are best analyzed qualitatively, results in a narrow spectrum of topics discussed thoroughly.

### 2.4 Case studies

A case study is "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context".<sup>11</sup> It includes both single- and multiple-case studies. Cases studies are typically mixed studies in the sense that they combine different study approaches. Johansson split them into six categories<sup>12</sup>, three of which can be considered as "quantitative" (they base their conclusions on numerical data: simulation, experimental and correlational), and the three others can be considered as "qualitative" (interpretative, argumentation, experimental).

The used articles either have specifically addressed the research topic or can be considered a seminal work in a broader field of research. To relate the selected literature and draw conclusions about the strengths and weaknesses of the different methodologies the literature has been accumulated in a literature grid. In the literature grid the most important information from every article was included like the author, title, year, country, journal

<sup>11</sup> Yin, R. K. (2009). Case study research: design and methods (4th ed.). Los Angeles, Calif: Sage Publications

<sup>12</sup> Johansson, R. (2003). Case study methodology. In *the International Conference on Methodologies in Housing Research*, Stockholm.

title and research design, but most important were the dependent and independent variables. These variables tell something about which topics and themes were described in the articles and which were the most important. The literature grid gave a clear overview of the similarities and differences between the articles and different methods.

### 3 RESULTS

#### 3.1 Interviews

A certain degree of knowledge about the topic is necessary to be able to use the methodology of interviews. In one of the articles<sup>13</sup> for example, researchers firstly conducted a desk study and secondly postal questionnaires to gain more knowledge before conducting the interviews. These interviews can give very detailed information about the complex situation of vacant offices. In the articles two types of interviewees are questioned; professionals in the form of architects real estate developers and building managers<sup>14, 15</sup> and the users of the buildings<sup>16</sup>. The first group is able to give a founded opinion based on the experience and knowledge, that they have obtained during work, while the users could provide useful information about their demands and behavior.

The interviews are used to analyze in which conditions transformation of vacant offices is interesting and if anticipating programmatic change may influence the feasibility of future transformations. This knowledge is for example used to develop a “transformation meter” with different criteria to measure opportunities and risks<sup>8</sup>. The interviews don’t aim at finding the causes of vacancy or how to transform the vacant offices. This is probably because the methodology is too detailed and time costly for these subjects<sup>5</sup>. The articles use mostly semi-structured interviews, whereupon the gained information is structured with key themes

and afterwards analyzed via the use of a matrix table. Analyzing and summarizing the gained knowledge is very difficult and complex. In one of the articles structured interviews are used<sup>9</sup>. This makes the method less time consuming and the information easier to analyze, however, the disadvantage of structured interviews is that the information is less detailed. An advantage from interviews over a questionnaire is that the interviewees can give more detailed information and bring up new ideas even though when it is a structured interview.

#### 3.2 Questionnaires

Questionnaires, as a form of discrete choice experiments, are used by researchers and real estate services to determine and analyze the preferences and possibilities for redevelopment of vacant offices. Since it can be doubtful whether to demolish or redevelop a vacant building, questionnaires can be used to gain more detailed insights in the chances for various strategies.

The questionnaires don’t aim to find the causes of structural vacancy. Most of the analyzed questionnaires however evaluate the chances of redevelopment or transformation in respect to the preferences of future users and owners. Another focus for the questionnaires is to determine the location and owners of vacant office buildings to increase the knowledge about the current situation of the problem.

All the evaluated questionnaires start with questions that help to describe the respondent. The questionnaires focus on various target groups (like market parties, the government, investors and house owners) depending on the main aims of the research. The defining of the respondent is followed by a variety of questions from the range of user preferences for spaces and rooms, to investments and economics, social and environmental impact, who is held responsible for promoting redevelopment and who owns vacant building structures in the Netherlands.

The questionnaires are used to describe both qualitative (how well) and quantitative (how many) aspects of the vacancy problem. Conclusions that are derived are for example that the Dutch agglomerations Amsterdam and Utrecht have relatively the largest problems with structural vacancy of office buildings<sup>17</sup> or that the Dutch

<sup>13</sup> Davies, P., Osmani, M. (2011). *Low carbon housing refurbishment challenges and incentives: Architects’ perspective*, Building and environment

<sup>14</sup> Remøy, H., Voordt, T. (2009) *Sustainability by adaptable and functionally neutral buildings*, Proceedings of SASBE 2009, 3rd CIB International Conference on Smart and Sustainable Built Environments, Delft

<sup>15</sup> Remøy, H., Voordt, T. (2006). *A new life: conversion of vacant office buildings into housing*, Delft: Delft University of Technology

<sup>16</sup> Easton, L., SavilleSmith, K. (?). *Homesmart renovations -testing tools to promote sustainable renovation*, New Zealand

<sup>17</sup> Teernstra, T. (2007). *Structural vacancy in Office Buildings*, master thesis, Eindhoven University of Technology, Netherlands

government should promote redevelopment of vacant offices.<sup>18</sup> Another questionnaire concludes that the respondents of the deselected market segments accept both former industrial and office buildings to be redeveloped for housing.<sup>19</sup>

The recommendation is to not merely use questionnaires before the redevelopment of vacant office buildings, but to also use this methodology to evaluate the exploitation and value of executed redevelopment projects as feed-back and check to the predicting research that was done before the execution of the project.

### 3.3 Measurements and statistics

Descriptive statistic measurements of various research agencies and real estate services<sup>20</sup> are used to describe vacancy in the Netherlands. The statistic sources describe the extensive high vacancy rates in the office market and thereby justify the relevance of the problem. The market is characterized by surpluses and deficits, the supply of office space is typically too large after a period of scarcity and too small after a period of abundance. Increasing the supply of office space, in times of deficits, is time consuming because of the duration of the building process. By the time that newly built buildings are suitable for exploitation, supply and demand has been changed.

A certain vacancy percentage, the percentage up to which vacancy will start and steer relocating, is desired. Expanding offices and shrinking offices can easily move because of this certain desired vacancy rate, named friction. To provide relocation possibilities, friction rates of plus minus 2 million square meter of vacant office space, in the Netherlands, is desirable. In 2010<sup>21,22</sup>, the vacancy rate is up to 14%, values which also occurred in the USA between the mid-eighties and begin-nineties. Although the current vacancy rates are not

<sup>18</sup> Hulsman, C., Knoop, F. (1998). *Transformatie van kantoorgebouwen: sturingsmiddelen om herbestemming van kantoorpanden te bevorderen*, Delft: Delft Universitaire Pers

<sup>19</sup> Vasilache, C. (2013). *Sustainable building reuse: Understanding user preferences for the housing market*, master thesis, Eindhoven University of Technology, Netherlands

<sup>20</sup> CBS, DTZ, EIB, JLL, NEPROM, ROZ/IPD

<sup>21</sup> CBP, Centraal Planbureau (2012). *Kantorenmarkt in historisch en toekomstig perspectief*, Den Haag: Centraal planbureau

<sup>22</sup> Zuidema, M., Elp, van, M. (2010). *Kantorenleegstand*, Amsterdam: Economisch instituut van de bouw

excessively high in historical and international perspective, prudent advice present in the sources is to take action regarding the surpluses in vacancy.

The statistical sources clarify the causes of vacancy which can be subdivided into two main causes<sup>21,22</sup>; the financial crisis, which results in less office-based jobs, and the changes in work trends. Changing work trends are translated into a smaller amount of space requirements as less square meters per working employee are needed.

Sources based on by statistic data broaden the knowledge of vacancy but fail to discuss the general research question as transformation is only mentioned as a possible solution to vacancy.

To test transformations of buildings, different types of measurements can be used. Parts of the transformation of a building can be tested and measured, for instance cost, carbon footprint, power consumption and energy retrofit measurements. Measurements, which are quantitative data about transformed buildings, can be used to compare different research areas. For instance a case study can be compared with gathered data about the same subjects, which results in a comparative analysis between qualitative and quantitative data.<sup>23</sup> This form of data can provide an overview of possibilities and a potential outcome of a specific transformation. Although measurements is not a stand-alone method, as it is often used as a part of case studies or a modeling approach, this form of measurements does provide a more specific answer to the research topic.

### 3.4 Qualitative case studies

One of the main reasons for the popularity of case studies as a methodology for research concerning refurbishment of the build environment, is its ability to address the topic in relation to its specific context. This context, which is vital for any decision concerning the build environment, is especially important in research that addresses questions of which the outcome is often indeterministic.

The qualitative case studies can be further subdivided into two categories. The first category evaluates the outcome of different projects that have already been completed.<sup>24,25,26</sup> By comparing the

<sup>23</sup> Remøy, H., Wilkinson, S. (2011). *Office building conversion and sustainable adaptation: a comparative study*, Property Management, Vol. 30 Iss 3 pp. 218 – 231, Emerald Group Publishing Limited

<sup>24</sup> Gelinck, S., Benraad, J.B. (2011). *Transformatie kantoren gaat niet vanzelf*. SBR, Kennisplatform voor de bouw. Rotterdam.

‘new’ building to its initial state these researches are able to directly expose the implications of refurbishment. These researches often rely on both survey’s and interviews to provide the research data. One of the benefits of these qualitative case studies is their ability to incorporate variables that are sometimes (particularly in the absence of a concrete example) perceived as difficult to clearly express and predict. An example of such a variable is the impact of a buildings transformation on the lifestyle of its inhabitants.

The second category of qualitative case studies exists of researches that investigate the potential of refurbishment by conducting feasibility studies.<sup>27,28</sup> The benefits of these studies is that they are able to provide new ideas and possibilities through combining the experience of the researcher with the specific needs of a location.

An important tread for the success of qualitative case studies as a research methodology is the amount of cases that could be analyzed. To retrieve valuable information this research method needs enough cases that closely resemble the case that is under investigation. Although there is already an abundance of office buildings that have been the subject of a transformation, finding cases that resemble all the assets of a particular project could prove to be a problem.

In general, qualitative case studies prove to be suitable for both the testing of existing theories as well as for developing new ideas. Although they do require a specific set of resources, there are quite a lot of researchers that perceive them as worth the trouble.

### 3.5 Quantitative case studies

A brief literature research shows that quantitative case studies related to office vacancies are typically related to financial and/or environmental assessments of a building. This is not surprising, since the goal of these studies is to decide, for a

specific building and in an objective manner, whether the transformation of a vacant office is financially viable.

The various case studies considered on the subject all used a mixed approach.<sup>29, 30, 31, 32</sup> They lead to an in-depth comprehension of the situation and the problems. The studies typically start with a qualitative approach that describes the state and functions of the building before refurbishment, and possible improvement scenarios. The quantitative data is used to evaluate whether or not the transformation is adequate, by first simulating the expected new performances and costs, then by their actual measurement if applicable (e.g. the energy savings or embedded CO<sub>2</sub>).

Quantitative case studies are also used to demonstrate the application and validity of new models. For example, Wilkinson developed a model where she reduces a complex set of weighted parameters (both quantitative and qualitative) into a small set of easily answerable questions.<sup>33</sup> She illustrates the application of the model with a quantitative case study.

From these observations, we can conclude that the qualitative and quantitative aspects of a case study are both very important and complementary. The qualitative side puts the experiment in a restricted context and provides insights on characteristics that are difficult to quantify (e.g. degradation state of a building). The quantitative side brings credibility to the research, and makes it systematically reproducible.

On the negative side, quantitative models can only take a limited number of parameters into account, which could lead them to significantly inaccurate results and wrong interpretations. This is why a triangulation of the research results and

<sup>25</sup> Hulsman, C., Knoop, F. (1998). *Transformatie van kantoorgebouwen: sturingsmiddelen om herbestemming van kantoorpanden te bevorderen*, Delft: Delft Universitaire Pers.

<sup>26</sup> Remøy, H., Voordt, T. (2014). *Adaptive reuse of office buildings into housing: opportunities and risks*, Building Research & Information, 42:3, 381-390.

<sup>27</sup> Bergevoet, T., Tuijl, van, M. (2013). *De flexibele stad, oplossingen voor leegstand en krimp*, nai010 uitgevers Rotterdam.

<sup>28</sup> Dekkers, J., Camerlinck, G., Steenwegen, B., (2012). *Nieuw licht op leegstand*, Nederland: Jeanne Dekkers architectuur.

<sup>29</sup> Baker, N. (2009). *The Handbook of Sustainable Refurbishment: Non-Domestic Building*, London: Sterling, VA: Earthscan co-published with RIBA Publishing

<sup>30</sup> Burton, S. (2001). *Energy Efficient Office Refurbishment*, Londen: James & James

<sup>31</sup> Swam, van, M. (2014). *Potential Transformation of Vacant Offices into Housing for Young People*, Master Thesis, Technische Universiteit Eindhoven

<sup>32</sup> Heijmans, N., Wouters, P. (2002). *Pilot Study Report: IVEG Building*, International Energy Agency – Energy conservation in buildings and community systems, Retrieved January 3, 2015, from <http://www.hybvent.civil.aau.dk/>

<sup>33</sup> Wilkinson, S. (2014). The preliminary assessment of adaptation potential in existing office buildings. *International Journal of Strategic Property Management*, 18(1), 77–87. doi:10.3846/1648715X.2013.853705

empirical confirmations are important to validate the models.

## 4 CONCLUSIONS

### 4.1 *Relation between the methodologies*

From the articles that have been analyzed, it could be observed that research articles based on different kinds of methods answer different kinds of questions. In other terms, a certain research question naturally leads to a specific appropriate research method. If it wouldn't, the research question would need to be further defined.

The methodologies of questionnaires and interviews are much alike, but interviews are more time consuming and costly. An advantage from interviews over a questionnaire is that the interviewees can give more detailed information and bring up new ideas even though when it is a structured interview.

Statistics are mainly used to identify the initial problem, in this case; office vacancy. Gathering quantitative data is time consuming and insufficient data will debauch non reliable assumptions, nevertheless quantitative data is of great importance to validate the problem. Measurements are often used in combination with quantitative case studies. Provided that enough data has been collected, a comparative study can be started by linking the studied subjects to existing data.

Interviews, questionnaires and statistics could serve as starting points to indicate some trends or possible potential, but are lacking the precision and specificity of a quantitative case study to take a sound decision.

Case studies give a lot of detailed information over the studied case. Their specificity can make them inappropriate to derive generalized conclusions, such as the causes of the office vacancies in the Netherlands, their geographical distribution, or the possible trends of the phenomenon. However when a group of correlated case studies is big enough, quantitative data of corresponding subjects can be gathered and generalized conclusions may emerge.

Furthermore, case studies can constitute pertinent starting points to determine which parameters should further be studied at a more global scale.

Qualitative and quantitative case studies work hand in hand. The former explains the context with precision and formulates hypothesis, while the latter demonstrates the validity of the assumptions and

allows to make decisions based on objective criteria. In general quantitative case studies seem unavoidable for investors to take a sound decision on whether a specific vacant building is worth refurbishing.

Qualitative case studies seem to be a research method well suited to investigate different aspects of Architectural transformations as a solution for vacant offices. In combination with other methods such as interviews and survey's they can be used to evaluate completed transformations or to unveil the possibilities of potential transformations. Their wide range of application possibilities makes case studies one of the most important methodologies used to require knowledge about the field.

### 4.2 *Conclusions about redeveloping vacant office buildings*

A complex problem like the structural vacancy of vacant office building in the Netherlands can only be fully analyzed by combining research based on qualitative and quantitative research methodologies.

The financial aspect is considered in all evaluated research methodologies linked to the topic of redeveloping structural vacant offices. This underlines the influence of the financial aspect in both the analysis and research for causes of structural vacancy and the opportunities for redevelopment of vacant offices and their exploitation.

Especially qualitative sources state that there is a growing support, among the people in the Netherlands, to support transformations of office buildings.

As previously mentioned, research methods are complementary and should be chosen in function of the goals pursued and the available resources for conducting the research.

## ACKNOWLEDGEMENTS

We would like to thank Anne Marie Peters and Ana Pereira Roders for tutoring our research for providing personal tutoring sessions. Furthermore we would like to thank all other tutors and speakers involved in the organization of this course, its interesting lectures and conference.

## REFERENCES

Aggenbach, V., Latuperisa, I. (2013), *Rapportage van het*

- eerste jaar Expertteam Kantoortransformatie. Agentschap NL, Den Haag.
- Baker, N. (2009). *The handbook of sustainable refurbishment: non-domestic buildings*. London; Sterling, VA: Earthscan co-published with RIBA Publishing.
- Bergevoet, T., Tuijl, van, M. (2013). *De flexibele stad, oplossingen voor leegstand en krimp*, nai010 uitgevers Rotterdam.
- Bull, J., Gupta, A., Mumovic, D., Kimpian, J. (2014). *Life cycle cost and carbon footprint of energy efficient refurbishments to 20<sup>th</sup> century UK school buildings*, London: The Gulf Organisation for Research and Development.
- Bullen, P., Love, P. (2011). *Adaptive reuse of heritage Buildings*. Perth: Curtin University
- Burton, S., Sala, M. (2001). *Energy efficient office refurbishment*. London: James & James.
- CBP, Centraal Planbureau (2012). *Kantorenmarkt in historisch en toekomstig perspectief*, Den Haag: Centraal planbureau.
- Davies, P., Osmani, M. (2011). Low carbon housing refurbishment challenges and incentives: Architects' perspective, *Building and environment*.
- Dekkers, J., Camerlinck, G., Steenwegen, B., (2012). *Nieuw licht op leegstand*, Nederland: Jeanne Dekkers architectuur.
- Easton, L., Saville Smith, K. (2009). *Homesmart renovations-testing tools to promote sustainable renovation*, New Zealand.
- Eurostat. "Assessment of Quality in Statistics: Glossary". Working Group.
- Gelinck, S., Benraad, J.B. (2011). *Transformatie kantoren gaat niet vanzelf*. SBR, Kennisplatform voor de bouw. Rotterdam.
- Heijmans, N., Wouters, P. (2002). *Pilot Study Report: IVEG Building*, International Energy Agency – Energy conservation in buildings and community systems, Retrieved January 3, 2015, from <http://www.hybvent.civil.aau.dk/>
- Hulsman, C., Knoop, F. (1998). *Transformatie van kantoorgebouwen: sturingsmiddelen om herbestemming van kantoorpanden te bevorderen*, Delft: Delft Universitaire Press.
- Janssen-Jansen, L., (2013, Februari 20). Vastgoed blijft echt verzadigd, *NRC Handelsblad*.
- Janssen-Steenberg, B. (2014). *Communal housing preferences: a stated choice experiment to investigate if vacant buildings are suitable for reallocation*, master thesis, Eindhoven University of Technology, Netherlands.
- Johansson, R. (2003). *Case study methodology*. In the International Conference on Methodologies in Housing Research, Stockholm. Retrieved from [http://www.psyking.net/HTMLobj3839/Case\\_Study\\_Methodology-\\_Rolf\\_Johansson\\_ver\\_2.pdf](http://www.psyking.net/HTMLobj3839/Case_Study_Methodology-_Rolf_Johansson_ver_2.pdf)
- Kothari, C. (2004). *Research Methodology Methods & Techniques*. New age international publishers.
- Kvale, S. (1996). *Interviews An Introduction on to Qualitative Research Interviewing*. Sage Publications.
- NVM Business, (2014). *Randstad office market 2014*, Nieuwegein: NVM Business.
- Oppenheim, A., (1992). *Questionnaire, design, interviewing and attitude measurement*. London: Pinter Publishers, pp.7-29.
- Pays de l'Albigeois et des Bastides, (2009). *Etude sur le parc de logements vacants de 15 bourgs du territoire, France: Pays de l'Albigeois et des Bastides*.
- Remøy, H., Voordt, T. (2009) Sustainability by adaptable and functionally neutral buildings, *Proceedings of SASBE 2009, 3rd CIB International Conference on Smart and Sustainable Built Environments*, Delft.
- Remøy, H., Voordt, T. (2006). *A new life: conversion of vacant office buildings into housing*, Delft: Delft University of Technology
- Remøy, H., Voordt, T. (2014). Adaptive reuse of office buildings into housing: opportunities and risks, *Building Research & Information*, 42:3, 381-390.
- Remøy, H., Wilkonson, S. (2011). Office building conversion and sustainable adaptation: a comparative study, *Property Management. Emerald Group Publishing Limited*, Vol. 30 Iss 3 pp. 218 – 231,
- Remøy, H., Voordt, T. (2007). *Conversion of office buildings; A cross-case analysis based on 14 conversions of vacant office buildings*, Delft: Delft University of Technology.
- Swam, van, M. (2014). *Potential Transformation of Vacant Offices into Housing for Young People*, Master Thesis, Technische Universiteit Eindhoven.
- Teernstra, T. (2007). *Structural vacancy in Office Buildings*, master thesis, Eindhoven University of Technology, Netherlands.
- Vasilache, C. (2013). *Sustainable building reuse: Understanding user preferences for the housing market*, master thesis, Eindhoven University of Technology, Netherlands.
- Voordt, T. (2007). *Transformatie van kantoorgebouwen thema's actoren, instrumenten en projecten*, Uitgeverij 010, Rotterdam.
- Waters, M., Plimmer, F., Kenney, S., (2007). Developer strategies for sustainable development in the UK: Redevelopment versus refurbishment and the sustainable communities plan, *Strategic Integration of Surveying Services*.
- Wilkinson, S. (2014). The preliminary assessment of adaptation potential in existing office buildings. *International Journal of Strategic Property Management*, 18(1), 77–87. doi:10.3846/1648715X.2013.853705.
- Yacobucci, P. (2012). *Introducing the Literature Grid: Helping Undergraduates Consistently Produce Quality Literature Reviews*, USA: Buffalo State College

- Yin, R. K. (2009). Case study research: design and methods (4th ed.). Los Angeles, Calif: *Sage Publications*.
- Zuidema, M., Elp, van, M. (2010). *Kantorenleegstand*, Amsterdam: Economisch instituut van de bouw.

# Exploring the influence and impact of tourism on the built environment

W.G. Huppelschoten, R.P. Kraak, M. Klont, H.C. Tran, O.J.M. Roerink  
*Urban Desing and Planning, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** Tourism can have a major impact on the built environment. This paper suggests suitable methodologies to research this phenomena. Existing research is explored and different methodologies are compared to identify the (dis)advantages. A literature grid in which comparable parameters are defined, formed the basis for this comparative analysis. The many relevant variables that this topic is subject to, make it impossible to recommend one specific research methodology. However, each method covers a certain range on multiple scale levels. As a result, there is no specific set of methods which is most suitable to research this subject. Depending on the desired result and set up of the research, A combination of methodologies complementing each other can be advised to cover the proposed research when several variables are fixed.

**KEYWORDS:** *Tourism, Built Environment, Influence, Architecture, Methodologies, Sustainability*

## 1 INTRODUCTION

Tourism is one of the fastest growing economic markets in the world. A lot of research about this phenomenon already exists. Not only research on its economic potential, but also the impact of tourism on communities and the built environment. The last decade there became more awareness of the consequences of this fast growing market and the effect which tourism has on the environment. Globally touristic environments are struggling with the issue of authenticity. How does this mechanism of tourism and the environment work? How does tourism influence social and economic structures of the community? This paper investigates how different methodologies describe the relation between tourism and the environment. Which method is the best way to research this topic and what results can be compared? Reviewed literature explores architectonical, social, anthropological and environmental aspects of the subject. The approach and results of these different methodologies will be compared in the end, and a recommendation of a suitable methodology will be provided.

This literature study has been made to explore the topic to support the architecture graduation studio Texel metabolized at the University of Technology Eindhoven. This graduation studio focuses on the Koog, a small town on the Island of Texel. Originally the town used to be a small dune village but because of the upcoming mass tourism in the beginning of the 20<sup>th</sup> century, it became the touristic hub of the island. The town has lost its authenticity and expression of local culture. Nowadays, the expression of the village is fully evolved towards the demand of the tourist; hyperconsumerism. With the disappearing of local culture, the towns identity became artificial, causing tourists and locals to lose their interest in the authenticity of the town.

Which methodology or combination of methodologies can unravel the metabolism of tourism and the environment the most accurate?

Every methodology will probably describe a certain range within the topic, some more superficial, others more in detail. A combination between different methodologies will probably be the best way to cover this phenomenon.

## 2 METHODOLOGY

To be able to recommend a methodology that is best to investigate this subject, we will look at existing research. In order to find relevant articles, prominent research databases (scopus, sciencedirect) have been consulted. To narrow down and get the relevant search results, we had to be specific and carefully define our search terms. The fields of our research are 'architecture & tourism', 'built environment & tourism', also including 'influence' or 'impact' within these terms. Twenty-five different articles have been selected. A diversity of methodologies is important and we considered a wide range of publication date. We also considered a variety in scale level, since the influence of tourism can for example be investigated on small scale (building), but also in broader context (landscape, built environment, movements and policies).

From the twenty-five articles, we can distinguish five methodologies:

**1. Literature study** the process of reading, analysing, evaluating and summarizing scholarly material about a specific topic often to provide a basis or framework for further research.

**2. Review** a review is a method in which multiple studies are researched, in order to get a clear view of what already has been done in research on a specific topic and describe major issues within a subject.

**3. Case study** is defined as a research strategy, an empirical inquiry that investigates a phenomenon within its real-life context. Case study research can include quantitative evidence, relies on multiple sources of evidence. It can be used to test a theory and otherwise provide a framework for further research.

**4. Observation** the research method observation is based on the experience of phenomenon, and tries to describe both the phenomenon itself, and the context in which it occurs

**5. Survey** a method of sociological investigation that uses question based or statistical questionnaires to collect information about how people think and act.

The goal is to eventually compare different (separate) methodologies and identify the (dis)advantages of each method. Therefore, each method is divided per group member to individually analyse the corresponding articles. However, to be able to compare the articles later on, uniformity is important. To achieve this, a literature grid is applied in which universal parameters of comparison are defined. The outcome is discussed in a comparative analysis to get an overview of the

results. A combination of different methodologies is also considered. Finally, a recommendation states which methods can be used for research within the field of tourism and built environment. The testing criteria to recommend and develop a suitable methodology can be considered exploratory and subjective to some degree.

## 3 RESULTS

### 3.1 Literature Research

Literature research is method that can benefit from both the successes and failures from previous researches. It elaborates on the results of former studies and it is often used to create a base or framework for further research. This framework can contain a combination of other research methods and theories. In literature research you often want to know what the correlation is between two aspects.

In the article “The impact of tourism on the physical environment” (Cohen, 1978) two principal factors are distinguished; measures that protect the environment *for* tourism and those who are protecting it *from* tourism. Different articles and books are used to construct a list with pros and cons and these are reviewed on several cases.

A literature study can be used to investigate a specific topic and support a new formed theory. But it is also a method to explore a certain topic for future research. For example the article “the relation between tourism and environment” (Rad et al, 2010) results in a backbone and the context for their future research.

Tourism and the build environment are both phenomena that evolve over time. By analyzing data from different comparable cases it is possible to extrapolate future development.

In the article “Architecture and urbanity of tourism” (Serra, 2010) the roots of tourism are directly related to the urban environment. The environment itself forms the tourist attraction. So the urban environment also has an influence on tourism as tourism has on the build environment. Both factors are investigated to construct a statement which is valid. Sometimes you want to investigate a phenomenon as a whole but therefore you need to understand its parts. There are not always sources which describe the topic as a whole, but several parts need to be derived from several studies to support the topic.

### 3.2 Literature Review

A review is a method in which multiple studies on a topic are reviewed. First, it is important to get a clear view of what already has been done and describe major issues within the topic. Secondly strengths and weaknesses of different movements or issues can be filtered, after which conclusions can be made.

Typical about the review method is the bigger overview or tendency that is explored. It is not connected to a location, but describes various movements, thoughts or instances within the research topic. It summarizes what already has been done and presents alternatives.

For instance, Andrew Holden's aim with his paper "In need of new environmental ethics for tourism"? (Holden, 2003) is to evaluate the actions of tourism stakeholders towards nature within the context of environmental ethics. His main conclusion is that 'the majority of the stakeholders pursue an ethic of conservation vis-a-vis an instrumental use of nature. However there seems to be little desire for a further shift to a 'non-anthropocentric environmental ethic'. He describes the main movements of stakeholders as a whole towards nature by comparing lots of sources with his literature-review. He was not able to really give content to the actions of tourism-stakeholders towards nature, because the literature-review does not provide such information. Nevertheless, his information might be of priceless value when it is connected to a case study within the exact same subject. In that way the results of the case study can be discussed within the framework of the bigger process.

This thought is confirmed by a line written in the conclusion of the paper "Assessing the environmental impact of tourism development" by Howard Green, Colin Hunter and Bruno Moore (1989). "In the application of the approach to Salt's Mill the method provided a useful appraisal of impacts associated with the development and allowed the major issues to be clearly identified". The 'method' they write about, is the Delphi technique, used to 'get the major issues to be clearly identified' by applying it to the specific case of the Salt's Mill. What is very interesting about the sentence, according to the review-method, is the 'major issues' part. They discovered the major issues

by using a literature review. Without knowing these issues, the identification with the Delphi technique did not have any value. So, again, in this case the review method was combined with other complementary methods, in this case the Delphi technique, applied to a specific case study.

Jarkko Saarinen and Christian M. Rogerson's paper "Tourism and the Millennium Development Goals: perspectives beyond 2015" (2013) is about "seeking to emphasize how we could potentially transcend the present barricades between pro-poor tourism and skeptics in future". (Saarinen et al, 2013) They write that 'the purpose of the review is to discuss the potential contributions of tourism to the United Nations Millennium Development Goals, specifically of poverty alleviation, and how the relationship between tourism development and the goals have been framed in the existing literature.' That is exactly what literature review is about: framing the relationship of connected topics within existing literature.

Margaret Deery, Leo Jago and Liz Fredline have written the very interesting paper "Rethinking social impacts of tourism research: A new research agenda" (2012). In this paper they point out that "the social impacts of tourism are crucial for industry, government tourism departments and agencies to understand how individuals within a host community as well as the host community overall perceives the benefits and disadvantages of tourism because of the potential hostile response to tourists if a balance is not achieved". (Deery et al, 2012). This main subject of social impact is really important to be understood also within the subject of the influence of tourism to the built environment. They found out by a literature review that they 'argue the predominance of quantitative methods potentially limits our ability to gain a more in-depth understanding of the social impacts.' Again, the literature-review was really helpful in understanding of what already has been done by researchers and what can be done differently to get better results.

To conclude, the review method is very helpful to get the bigger image of a process or to get a better understanding of background information, which is necessary to come up with solutions on a smaller scale. When we are trying to connect the review method to our subject 'What is the influence of tourism on the built environment', it is not a capable method to just answer this question. Nevertheless, if there are methods which can, they

still need background information to add value to the answers or solutions. Therefore the review method can be extremely valuable in cooperation with another method or methods which cover another part or scale-level. Thereby together cover the whole range and different scales of the problem.

### 3.3 Case Study

In “Case Study Research: Design and Methods” (Yin, 2009) case study is defined as a research strategy, an empirical inquiry that investigates a phenomenon within its real-life context. Case study research can include quantitative evidence, relies on multiple sources of evidence. It can be used to test a theory and otherwise provide a framework for further research.

This is also supported and well-formulated in “The case study is a research approach, situated between concrete data taking techniques and methodological paradigms”. (Yin, 2009)

“Assessing the environmental impact of tourism development” (Green et al, 1989) is a good example of the position of the case study as part of a larger whole. The article introduces the Delphi method in contribution to existing Environmental Impact Assessment (EIA) methodologies. This can roughly be described as support-tool for decision making, used to predict the environmental consequences (positive or negative) of a plan or project. The combination with the Delphi technique is not new, but this is the first time that it has been used to identify environmental impact on the rural and urban environment. As a case study, this approach has been applied to a Salt Mill and provided a useful appraisal of impacts associated with the development and allowed the major issues to be clearly identified. However, the article does mention that in order to be dogmatic about the reliability of the developed methodology, it should be tested in a range of different environments. However, with the careful selection and management of the expert panel, this methodology utilizing the Delphi technique, does appear to offer a valuable addition to other EIA methodologies.

“Tourism, changing architectural styles, and the production of place in Itacaré, Bahia, Brazil” (Khaksar et al, 2011) is examined, as it transitions from a fishing village to an international tourist destination. Tourism is described as an assemblage of practices and perspectives, recreating places in specific ways that structure social and environmental relationships. Different aspects of the local architecture are investigated through survey and in-

depth interviews, supported by literature. Furthermore Social and Environmental aspects are emphasized. This approach succeeded in showing a difference in architecture, but also provided interesting background information about the social aspects involved. There seems to be a lot of difference in views and opinions about the development of the city. As concluded in the article: the analysis of architectural styles in Itacaré reveals in specific ways that tourism reconstructs place and attempts of different groups to shape these processes. Because of the significance of tourism in transforming communities worldwide, understanding the concrete ways that tourist architecture is a site for the construction, negotiation, and production of place is essential in analysing its effects on local communities.

The role of a small case study within a larger context is also demonstrated in “The reciprocal effects of architecture and tourism the sustainability approach”. (Khaksar et al, 2011). The article focuses on the design of hotels as tourism facilities and the way they can contribute in creating a sense of place for those who stay in them or even visit them. The term 'sustainable tourism' is discussed through literature and eventually investigated by briefly looking at the Iranian tourist industry including three hotels. An attempt has been made to find actual connections with the theories stated in the article. As the article concludes: "The practice of sustainable architecture in the form of building hotels has been realized in Iran and has had positive impacts in creating a sense of place for the domestic and international tourists in cities across Iran." But the contribution and added value of the case study to the subject can be questioned. It shows some examples rather than supporting or proving the research as seen in the first two articles.

In “The architectural and urban heritage of Jakarta” (Gill, 1991), an attempt has been made to research and also put historical features to use in cultural tourism. The urban memory is introduced as a mapping tool that reflects the historical architectural and urban morphology. It contains information on the specific characteristics of the historical urban structure, the buildings and the open space which makes a city a recognizable historic structure. This is ultimately tested on the case of Jakarta, where according to the article, the city identity is mainly derived from the historical and cultural aspects.

This way, the article proves that the development of urban memory maps could be a useful urban planning and design tool for historic towns, cities

and even regions. Ultimately 'to keep the urban heritage of towns and cities alive in the urban environment of today.' An important conclusion is that the Jakarta model could serve as a model for development of cultural tourism in other cities that originate from an own culture and tradition.

"Tourism and the environment on the Isles of Scilly: conflict and complementarity" (Far et al, 1994) shows how a research applied to one specific case or place can also reflect broader environmental concerns. This paper looks at the impact of tourism on the natural, economic and social environments of the Isles of Scilly. This research study also involves a combination of different methodologies. Literature study provided a framework and starting point. The economic aspects are investigated through quantitative data. For the social impacts of tourism, informal interviews were held. With regard to major ecological changes, input from knowledgeable interviewees is combined with existing survey research about the area. The article shows a systematic approach to identify different areas that are influenced by tourism in both positive and negative perspectives. With this, new questions and opportunities came up, for example further examination of green tourism. The article concludes that the isles of Scilly prove a valuable testing ground for the topic and show that there are important areas of complementarity between tourism and the environment.

### 3.4 Observation

The research method observation is based on experience of a phenomenon. Observation is a research method which can be both qualitative and quantitative. The five articles used for this analysis have all used a qualitative research method. Which means that they all try to describe a certain phenomenon. These phenomena can be quite diverse, even within the same topic.

"The Relationship between Tourism and Environment" (Rad et al, 2010) describes poorly managed tourism as a threat on the specific qualities of the environment. "Architecture and tourism think global" (Deda, 2006) raises the phenomenon of the globalized architecture of tourist facilities. "Social conflict in communities impacted by tourism" (Yang et al, 2012) provides a method to analyze social conflicts in society caused by the development of tourism. "Tourism, changing architectural styles, and the production of place in Brazil" (Palmer, 2014) describes the potential of tourism to acknowledge and preserve the quality of an area.

"Serious tourists: a proposition for sustainable indigenous tourism" (Wu et al, 2014) promotes attracting a serious tourist to indigenous places.

But there is more than only the phenomenon, as it is always affected by the context it occurs in. That is also what determines the quality or validity of the research, the researcher's awareness and perception of the context. This perception of the researcher is also influenced by his knowledge, life experience, background and belief. This makes observational research complex and subjective.

Because of this, three out of the five articles' validity are doubtful. The first article "the relationship between tourism and environment" (Rad et al, 2010) describes the balance between the environment and tourism and suggest a good managed sustainable tourism. The second article "Architecture and tourism think global" (Deda, 2006) suggests a sustainable vernacular against the globalization of architecture in tourism areas. The fifth article "Serious tourist: a proposition for sustainable indigenous tourism" (Wu et al, 2014) promotes attracting only serious tourist to indigenous places. The researchers did not investigate their topic context very thorough, or the context of their solutions. They are written as a monologue based on personal experience with the phenomenon pleading for their solution. The papers miss a full understanding of context and their solutions are written without subjection to a whole context. So their solutions became less legit, or not realistic.

The two other articles did do their research a lot more thoroughly. Both researchers were aware of context. They included a literature study within their research and both took twelve months part in social live at location. They really took the time to study the phenomenon and his context. They combined the literature study, case study and observation in their research methodology. The third article "Social conflict in communities impacted by tourism" (Yang et al, 2012) resulted in a research methodology for this situation. The fourth article "Tourism, changing architecture styles, and the production of place in Itacare, Bahia, Brazil" (Palmer, 2014) resulted in a review of the general thought of tourism deteriorate places. It showed how tourist and expats acknowledge the quality of the place instead of locals and try to maintain it.

Observational research is a difficult and time consuming method. It is hard to fully understand the context in which a phenomenon appears. The solutions aren't groundbreaking, but the quality lies in the nuances. It is pointless to generalize context or

solutions. The research is subjected to the ability of the researcher. When his knowledge about a topic is limited a literature study is needed, also a specific location enhance the quality of the research. But observational research can be very valuable because it can show processes that are not visible.

### 3.5 Survey

The use of the survey method to analyze the influence of tourism on the built environment, is highly dependent on multiple factors. For example, the approach and purpose influence the way the survey is being used. The way the survey is created supports this purpose. The purpose of the research has a major influence on how the data is collected and analyzed. In “Assessing the environmental impact of tourism development” (Green et al, 1989) and “The development of indicators for sustainable tourism: results of a Delphi survey of tourism researchers” (Miller 2000) the survey is used to evaluate their designed methodology on how to assess the impact of tourism development on the environment. In both papers the use of the Delphi approach has been implemented to reach a consensus after 2-3 stages of questionnaires. Each stage uses the results from the stage before and the means are shown in the next survey to allow the questioners to readjust their opinion. Where as in “Current issues in Tourism” (Yang et al, 2010) “Tourism stakeholders attitudes toward sustainable development” (Chen, 2014) the survey has been used to collect information on how a wide group of people think about the impacts of tourism. The surveys in these articles are built around gathering information and the questions are designed to achieve this.

While survey gives a statistical overview of what other people think, the method is heavily affected by the input from questionnaires. Therefore the importance of sample size, sample group, viewpoint of the designed questions etc. are carefully looked at when creating a survey, but also the time, duration and location affect the outcome of the survey. The results should be validated to reach a conclusion. This can be done through the use of the method of Likert (Yang et al, 2010) or other methods.

Within the five analyzed papers, the research method survey is used in combination with additional methods to gain enough input or output. With the Delphi approach the first set of questions is

derived from a comprehensive literature study and in “Current issues in Tourism” (Yang et al, 2010) qualitative methods like interviews were used to add in-depth information. In all the papers a case study has been used to give the survey a context and boundaries.

To refer back to the relationship between the research methods and the ability to investigate the influence of tourism on the built environment. The survey gives a statistical overview of what other people think about the influence of tourism in a statistical value. Resulting in a mean that is generally used to make a statement. The strength of the survey is its versatility in usage. The survey can be molded to fit different purposes from simply gaining information on the sample to the evaluation of the impact of tourism on the built environment. One of the main weaknesses of survey is that there are a lot of different factors that can influence the validity of the survey and that the method is dependent on the input from other people. As seen in “Assessing the environmental impact of tourism development” (Green et al, 1989) several questions that were used in the first round of questionnaires were unclear to the respondents. Therefore multiple questions did not get answered and came back blank. Also the results shifted over the several questionnaires. The biggest influence on the survey is the sample group. It is important to know if the group will be representative to answer your question. With too few respondents or a fixed type of group the survey will not be representative for the entire population. Before the survey reaches a conclusion, the received data needs to be validated.

### 3.6 Comparative analysis

In this paper we try to look at relation between two interesting but complex phenomena. On the first hand we have the more subjective nourished phenomenon of tourism where different needs for recreation need to be fulfilled. On the other hand there is the built environment that could be considered as a more static and objective result of subjective processes during time. To make matters more complicated, some parts of the built environment are the source of tourism. Humans are attracted to monumental things. In architecture there are a lot of examples that architecture functions nowadays as a tourist attraction. If you want to investigate the relation between these two

phenomena, you need to consider the influences of the aspects of time, subjectivity, social context and location. If the aim is to make a statement about this relation, the research methods or possible combinations should be considered very carefully.

If we go further into detail of the methods used in the articles, there can be discovered that each research method has its own pros and cons. The review method tries to grasp the context by comparing different processes and subtract a common factor. This makes it suitable to investigate social processes of tourism. But before you even start your research, it is often recommended to start with a literature research to define a starting point. Literature research can help you to construct a framework for your research. Because literature is often available from different times you can see a subject or an opinion of a subject evolving. This makes it possible to include the dimension of time into the investigation. By analyzing literature written in different periods in time, you can describe how a context developed over time. You can even make predictions about how relations will change in the future. A weakness of this method is that misunderstandings can occur due the fact that the interpretation of researcher and the way that information is written down. If you want to encounter the more objective parts of a problem field to test or digest hypotheses, observation research and case studies are suitable. During a case study you often want to research one specific subject. It can either be a qualitative or a quantitative form of research depending on the nature of the subject and data. The problem is that it is often complicated to generalize and validate the outcome of a case study because it investigates only one single aspect. If you want to research a complex system that consists of more than one parameter, observation could help you out. During an observation research, as an observer, you do not intermingle with the respondents. The situation that you want to observe is as real and uninfluenced as possible. The observer does have the role to assess the situation and it is therefore not always possible to avoid the influence of subjectivity. In observational research the sample of the test usually is completely random and the observer a highly trained person. Interpretation of a situation by an observer does not always have to be a bad thing. It could also lead to a better understanding of the situation because the observer can adapt to the

circumstances.

The fifth method that is analyzed is the survey research. This method can be used for a lot of different purposes and can deal with a large sample size. A large sample size often results in more valid conclusions. You need to carefully choose your questions and strategy to get the right answers to validate your conclusion. A hypothesis can be significant from the data you have collected, but it could be describing the wrong phenomena or the phenomena in the wrong way. One of the advantages of a survey is that you can vary in the degrees of freedom of answering. There are systems of survey researched developed to converge and diverge to come to the right and more specific conclusions. One of the disadvantages of survey researched is that the more open the questions are, the more subjective the interpretation becomes.

#### 4 CONCLUSIONS

Describing the relation between the phenomena tourism and built environment is not a straightforward task. Because of the many relevant variables, it is impossible to state that there is a specific method suitable to apply to these subjects in any case. Therefore generalizing is not an option. This is also the case, because the relationship between tourism and its built environment can be interpreted in two directions: tourism influencing an existing environment, or tourism creating a new built environment by its demands.

Nevertheless, we can say some useful things about when to use which method, or which methods are complementary to each other.

When you see the whole subject as some kind of large range, every method covers a certain part of it. In the best case scenario, a researcher is able to cover the whole range, to get the best thinkable understanding, in different scale levels, about the influence of tourism on the built environment.

We will now describe how to reach this best-case scenario. The researcher should start with a literature research or review to obtain necessary background information and add value to outcomes on a smaller scale level. For instance with a case study, that can also be combined with a survey or observation. But be aware, there are some risks. Observation is all about personal interpretation, and therefore subjective, but also time consuming. Choosing the

correct sample is most important when applying a survey. Concluding, to cover the total range of the influence of tourism on the built environment, it is necessary to research the large scale and the small scale, by connecting a literature research or review to a case study (survey or observation). If a researcher just focuses on one scale-level, the outcomes of the research might be too general or have too little value.

We think further research can be done by defining more specific the different variables to rate the methodologies. This also improves the objectivity of the research. When this approach is worked out well, it can be very useful to researchers to see which methods are most suitable to their specific subject and context.

## ACKNOWLEDGEMENTS

We would like to thank the tutors of the class 7x811 Research in Urbanism and Architecture at the Technical University Eindhoven for the variety of information related to subject research methodology, but also for the opportunity to give us a different look at the methodologies on a bigger scale. Especially we would like to thank dr. A.R. Pereira Roders and ir. A. Peters van den Heuvel for the constructive feedback and the support during the writing of this paper.

## REFERENCES

- Abali, A.Z. , Onder, D.E. (1990). The Local Architectural Image in Tourism. *Elsevier Science B.V.*, Volume 17, Issue 2, 1990
- Becken, S., Job, H. 2014. Protected Areas in an era of global-local change. *Journal of Sustainable Tourism* pages. 507-527
- Cavallo, B., D'apuzzo, L. and Squillante, M. (2014). A multi-criteria decision making method for sustainable. *Quality & Quantity*.
- Chen, J.S. (2014). Tourism stakeholders attitudes toward sustainable development. *Journal of Retailing and Consumer Service*
- Cohen, E. (1978). the impact of tourism on the physical environment. *Annals of Tourism Research*, Vol. V, No. 2, April/June 1978, pp. 215–237
- Costa, C. 2001. An emerging tourism planning paradigm. *International Journal of Tourism Research* (Impact Factor: 1.02). 11/2001, 3(6):425 - 441
- Deda, P. (2006). Achitecture and tourism think glocal. 2A *Magazine & Memary Magazine* spring 2006 issue 1.
- Deery, M., Jago, L. and Fredline, L. (2012). Rethinking social impacts of tourism research A new research agenda, *Elsevier Science B.V.*, Volume 33, Issue 1, February 2012, Pages 64–73 Volume
- Far, H., Rogers, A. (1994). tourism and the environment on the isles of scilly- conflict and complementarity, *Elsevier Science B.V.*
- Green, H., Hunter, C. and Moore, B. (1989). Assessing the environmental impact of tourism development. *Butterworth/Heinemann Ltd.*
- Gill, R. (1991). "The architectural and urban heritage of Jakarta" *Jakarta's Urban Heritage: Restoration of the Urban Memory of Kota*, Faculty of Architecture, Delft University of Technology.
- Holden, A. (2003). In need of new environmental ethics for tourism?, *Elsevier Science Ltd. Annals of Tourism Research*, Vol. 30, No. 1, pp. 94-108.
- Khaksar, A. , Tehmouri, A. and Hoseinrazavi, S. (2011). "The reciprocal effects of architecture and tourism the sustainability approach" *Journal of Tourism, Hospitality & Culinary Arts* vol 2, issue 3, 2010.
- Miller G. (2000). The development of indicators for sustainable tourism: results of a Delphi survey of tourism researchers. *Tourism Management*, 22 (4). 351 - 362
- Palmer C.T. (2014). Tourism, changing architectural styles, and the production of place in Brazil. *Journal of Tourism and Cultural Change*, (ahead-of-print), 1-15.
- Pigram, J.J. (1980). Environmental implications of tourism development. *Elsevier Ltd*, Volume 7, Issue 4, 1980, Pages 554–583.
- Qiana, J. , Feng D. and Zhu, H. (2012). Tourism-driven urbanization in China's small town development - A case study. *Elsevier Ltd., Habitat International* 36.
- Rad, A.F., Aghajani, S. (2010). "The Relationship between Tourism and Environment" *Iranian Journal of Tourism & Hospitality* vol 1, no1, Islamic Azad University.
- Saarinén, J., Rogerson C.M. (2013). Tourism and the Millennium Development Goals perspectives. *Local Communities and Development*, pp. 1-12. London: Routledge
- Serra, S. (2012). *Architecture and urbanity of tourism*
- Su, M., Wall, C. and Ma, Z. (2013). Assessing Ecotourism from a Multi-stakeholder Perspective, *Epub* 2014 Sep 24
- Yang, J., Ryan, C. and Zhang, L. (2012). Social conflict in communities impacted by tourism, *Elsevier Science Ltd., Tourism Management* 35
- Yang, L. , Wall, G. (2010). *Current Issues in Tourism. Planning for ethics in tourism*
- Wu, E., Wall, G. and Tsou, L. (2014). Serious tourists: a proposition for sustainable indigenous tourism.

# Bridging the Gap: Towards Holistic Research on the Reciprocal Relation between Landscape and Tourism

P. Kersten, B. Jansen, R. Kooloos, M. Wang & G. Zhao

*Urban Design and Planning, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** The aim of this paper is to examine the sufficiency of methods to research the reciprocal relationship between tourism and landscape. In this paper this relationship is understood in a general, theoretical perspective and in a specific, contextual perspective. The research methods are examined against the background of these two perspectives. Based on literature study of 25 scientific papers, a comparative analysis of research methods is done through a literature grid, setting out the main findings, strengths and weaknesses of five different methods. The research methods of study are: archival research, case study, GIS data analysis and collection, literature study and survey research. To applicability of the studied research methods strongly depends on the taken perspective to examine how tourism and land-scape influence each other. Where literature study is suitable to study the subject from a broad theoretical perspective, archival research and case study are strongly devoted to a specific case. However, GIS data analysis and collection, and survey research seem to be suitable methods to bridge the gap between quantitative and qualitative research, and objectivity and subjectivity. One of the overall conclusions which we could directly derive from the study of literature is that from the late 20th century onwards it is often concluded that more research needs to be done on the relationship between tourism and landscape from a holistic perspective. The paper suggests a possible ‘container of research methods’ towards this holistic approach.

**KEYWORDS:** *Landscape, Tourism, Research methods, Holistic perspective*

## 1 INTRODUCTION

Texel is a promising island with continuously ongoing touristic development in the north-west of the Netherlands, in the province of Noord Holland. Also, it contains different types of landscape, because of which tourists come to the island and appreciate the natural beauty. Globally, Tourism is growing very fast and many countries regard it as a promising and important industry. (Dorcas, 2003) Meanwhile, landscape is perceived as a great sector of tourism. (Dorcas, 2003) In both cases, the landscape can boost the prosperity of tourism, however, the development of tourism can affect the landscape. As the landscape and tourism is a topic that we aim to analyze on Texel in our graduation project and is also interesting globally, we will

explore their reciprocal relation by five research methods: literature review, archival research, geographic information system, survey and case study. The purpose of this paper is to compare these methods for this topic and determine the applicable ones. The aforementioned methods will be analyzed and compared, and some might be complementary in the future study.

## 2 METHOD

In order to examine which methodologies are sufficient for research on the relationship between recreation and environment, the used method for this paper is literature study based on primary and secondary sources. To investigate the applicability of research methodologies this paper examines five different methods. Therefore, we collected 25

scientific papers on the relationship between tourism and landscape and tried to distil the most relevant research methods from these papers. The used databases for literature are 'Scopus', 'Google Scholar', 'Web of Science' and 'JSTOR'. Finally five research methods were selected and each method was picked by one student: archival research, case study, GIS data analysis and collection, literature study and survey. According to a specific methodology, each student again collected five papers, resulting in 25 papers and five research methods. Using a literature grid, these papers were examined on *purpose, method, main findings and strengths and weaknesses*. Additionally, to make a distinction between where the article is about and the relevance of the article regarding the topic, an extra column was added called *conclusion: article related to topic*.

### 2.1 Literature review

The method Literature review was chosen to be able to find out about the current state of affairs in researching the tourism landscape relation. A range of reviews was taken that consisted of the newest reviews and some of later dates as to be able to get an historical perspective. Also reviews that view the topic from different angles were selected to see in what way the topic can be researched.

### 2.2 Survey

To measure people's values in relation to a landscape, survey, as a widely used method, provides a strong tool to investigate the topic. The keywords of 'landscape' and 'tourism' were firstly used to filter the papers. Among the large number of results, 'landscape perception' is mentioned in many. Survey is the method that these papers commonly used to study 'landscape perception'.

### 2.3 Archival research

Since historical research is considered as an important tool to examine the historical development of the relation between tourism and landscape, we initially wanted to examine the relatively new method of landscape biography because of its holistic approach towards the history of landscapes. However, by doing database research, only one relevant article about landscape biography and tourism was found. Using the keywords 'archival research' and 'recreation' resulted in 56 document

results of which three are relevant. The combination of the keywords 'landscape', 'leisure' and 'archive' resulted in three document results, of which one was relevant.

### 2.4 Case study

Briefly, case study aims to probe a phenomenon within a certain context. During this research process, a great number of data sources will be used, by which a multifaceted analysis upon the phenomenon is achieved. This method admits the subjectivity of "human creation of meaning" (Miller & Crabtree, 1999), and approves some objective notions, too. In this sense, one can presume case study method as an approach focused on the dynamic and intensive relations between object and subject

### 2.5 Combining datasets

Because GIS is one of the key tools for combining different datasets in landscape research, it was decided to specifically search for articles that used this tool. Using the keywords 'landscape', 'tourism' and 'gis' at the same time gave 196 results on Scopus, out of which 5 articles that differed in terms of approach and goals, but using the same type of tool (GIS), were found. Using GIS as a term in the search however also resulted in more than 50% of the articles found not being relevant for our research. A manual scan of the articles found was done, up to the point where the amount and spread, in terms of quality and specific subject, was seemingly representative.

## 3 RESULTS

### 3.1 Literature review

- L Literature reviews are done in the early stages of almost every type of research. In two of the papers a literature study is done preceding a case study. In three of the five researches review of literature is the main method used. These researches differ in the way they approach the topic. One paper approaches the tourism-landscape relationship from a sociological perspective and the others discuss literature within the environmental sciences.

In Pigram (1980) a literature review is done to set a framework for considering a case study. General subjects concerning the relationship of

tourism and the landscape are discussed to put a case study in perspective. In the other studies the goal is to review as much recent literature as possible to give a good overview of current knowledge and new discoveries concerning a particular field of research.

Studies are found that research the topic from many different angles but most concentrate on tourism as an aspect of economics or human behavior (Buckley, 2011).

An Example is Cohen (1978). The focus in this paper is the sociology behind the tourism-landscape relationship, in another article he goes into the sociology of tourism in general (1984). In these studies the influence of humans on the landscape and their relationship to this landscape is being covered.

Cohen (1978) states that *“One cannot talk about the ‘environmental effects’ of tourism in overall, general terms”*. To do relevant findings one has, according to Cohen, to elucidate the factors in the tourist situation which are of greatest consequence for the landscape and then evaluate the impact of each factor. 17 Years later however, McCool (1995) pleads for a more holistic approach towards research on tourism. As tourism is effecting social, natural, economical and political situations these aspects should be researched in relation to each other.

Literature studies generate a large quantity of input and one gets a broad perspective on current state of affairs within the field of research. Including studies from different points in time can be a good tool to monitor progress in tourism research and to see what is studied too little.

Because the findings are most often general facts, the combination with another type of research, like a case study, is needed to demonstrate certain general findings in a specific context.

Research on the tourism-landscape relationship is too much scattered amongst different fields of research and is, according to Buckley, in 2011 still ‘relatively small, new, insular and inward looking’. Although this is a conclusion he could only draw after doing extensive reviewing he also concludes that there are not yet enough valuable sources to review.

Literature reviews are a great tool to draw general conclusions about the field of research and about specific topics within the field. Because the method is used to stay general they mostly are not more than a listing of findings and not a great way to see in depth results about certain small scale

developments. However, it is a good starting point to see what type of research is done and what can be valuable for the situation. Also research on tourism worldwide is in need of a more holistic approach to give valuable sources to review.

### 3.2 Survey

The touristic values and preferences are social attributes of a landscape; which are examined by the surveys in the selected papers. The topics tested include the influence of socio-demographic characteristics on landscape perception, public evaluation regarding landscape changes, the social landscape metrics, and the incorporation of geographic information system (GIS).

Survey is a method that studies the sampling from a population, which is not necessarily comprised of people, by data collecting techniques. The questionnaire, as the most commonly used data collecting technique, could be structured from hypothesis, and integrated with a certain scale (Beerli & Martin, 2004). While in the cases of public participatory geographic information system (PPGIS), the distribution and density of the markers in a certain grid provide the data for inductive or boundary analysis of the landscape social qualities (Brown & Reed, 2011).

Efficient as a survey could be, certain aspects are need attention. In the postal survey for studying tourists’ characteristics and perceived image of tourist destinations (Hunziker et al., 2003), the response rate varies from 15% to 71%, while in the research of PPGIS (Brown & Reed, 2011), less than 12% people answered the mailed invitation for the survey. Low response rate might lead to latent problem of homogeneous samples; random selection is a way to avoid the problem. Setting different survey points and maximum duration, adopting the same language could help to avoid homogeneous samples (Scolozzi et al., 2014). In addition, a systematic inventory of landscape features and tourists’ perceptions is yet to be set up. And a factorial analysis should be undertaken to reduce the dimensions of the indicators and identify the determinant ones (Beerli & Martin, 2004).

Generally, a survey appears to be effective in revealing the statistical connection between environment and people. In the practical application of a survey, other methods are always incorporated with, according to the specific topics.

### 3.3 Archival research

Regarding the two - general and contextual - perspectives on the relation between recreation and environment, the five examined papers on archival research mainly focus on the contextual development of places, societies or events. The papers all specific touristic environments differing from Alpine skiing to urban green zones, and from American resort towns to French wetlands. Based on the read articles, in archival research a distinction can be made in the use of historical and more recent archival sources.

Besides, in one article archival research offered an alternative for survey research: *“[a]rchives from local community, business and voluntary groups were selected and these were good sources of the local community's concerns about its living and working environments”* (Tzoulas & James, 2010). Although in the analysed papers only local or regional archives were consulted, many different types of archives from municipalities, private persons, and companies, tourist organisations, museums, history clubs and newspapers were used (Clout, 2006; Tzoulas & James, 2010; Crewe, 2011; Bremmer, 2013; Denning, 2013). Moreover, the used sources for the papers are based on a wide range of media (Bremmer, 2013). Besides, oral histories were an important source to investigate the role of less represented social groups in these written sources (Crewe, 2011).

Based on the analysis of a specific situation in which tourism and landscape are strongly related, all the papers give recommendations on future tourism development for the specific landscape and comparable landscapes. Furthermore, by examining the past of very specific cases, all the articles aim to distillate significant patterns that can be recognised in order to derive more general conclusions. A limitation of archival research is the availability of sources which strongly depends on the consistency if and how information is included in archives. Moreover, sometimes certain information is only available via specific media because the information was less or more relevant at the time.

### 3.4 Case study

In general, the purpose of this method is to answer “how” and “why” questions. (Baxter & Jack, 2008) Out of the five selected papers, two focus on the

method itself referring its task and steps. They show that the main phases of this method are data gathering and data analyzing. The other three display real cases referring to landscape and tourism development. They demonstrate how the method is used in each case.

The focal points of case-related papers include touristic landscape value versus residential development in Kangaroo Island, Australia; the vital role of landscape enhancing the touristic destination in Nigeria; sustainable tourism development regarding tourism burden in the protected landscape area in Czech Republic. These analyses reveal some common characteristics, such as a survey used tactically to collect residents' subjective opinion on landscape and tourism as used by (Dorcas, 2003; Brown, 2006), or geographical facts demonstrated by GIS approach in data-gathering (Brown, 2006; Antoušková & Mikulec, 2011). One characteristic in data-evaluating phase is to use regression model. It guarantees the validity and credibility of final results.

In all these cases, case study method gives a thorough and comprehensive analysis on the topic by using multiple resources and techniques. It relates directly to the common readers' everyday experience and facilitates an understanding of complex real-life situations. (Stake, 1995) However, there are shortcomings too. Firstly, an overwhelming amount of data makes it easy for researchers to lose sight of the original research purpose. (Brown, 2006) Secondly, the topic can contain too many objectives or can be too broad because of the selection of multiple real-life cases. (Stake, 1995)

To conclude, by using the case study method, one can gain a subjective view on touristic development regarding the landscape and obtain spatial information of variations and highlights of landscape in touristic areas. However, one should be careful of the great amount of gathered data and not get lost in them. Most importantly, the research result can be statistically evaluated and it is sufficient and valuable as a guidance to balance the future development between tourism and landscape.

### 3.5 Combining datasets

“Geographical information systems have been found to be effective planning tools when multiple uses and demands require more land than is available.”

(Vries & Goossen quoted in Adam Beeco, J., Hallo, J. C., English, W., Giumetti G. W. 2013) This point is argued by more researchers in this field. The combination of different types of data (quantitative and qualitative) from different sources make that GIS “offer novel and more sophisticated analytical options for recreational impact monitoring”, according to Hamitt & Cole (Adam Beeco, J., Hallo, J. C., English, W., Giumetti G. W. 2013)

In the example of Beece et. al. GPS trackers were used to track the usage of trails by hikers, runners, mountainbikers and horseback riders and combined with trail design to find relation between this data and the condition of the trails. Measuring trail conditions was mentioned to be hard to remain objective, since the different variables used in determining the condition had to be weighed. Although the researchers mention most of the flaws and pitfalls of their research themselves, for example that “there are other variables associated with reducing trail deterioration that were not analyzed...”, they forget to mention what others in a different research, that uses quite similar methods, do mention, which is that using a GIS system can make data look more objective than it actually is; once the data is in the system, it tends to become a given instead of something that might be biased, like the indicators mentioned before.

Another pitfall that comes with using methods that combine big data sets, is that the amount of data will become a lot larger than would happen without combining. Beece et. al. only had a collection of 405 measurements, which they manually checked, since the statistical tools did not have the proper outcome. This work proved very work-intensive, doing away with one of the large advantages of the use of systems like GIS, which is the speed at which it would be possible to combine information. When sample sizes get bigger in the future, this work soon becomes un-doable for a small team. Chances of errors would be bigger, while the information eventually inside a GIS seems to be no different and still seems objective and true.

To avoid the pitfall of seeming objective and holistic without actually being so, the collection of data used in a GIS needs to be accurate and correct. This in combination with large amount of data that can and should be combined in GIS makes the collection more time consuming. However, external sources can also be combined; the researchers combining the data do not necessarily have to be the

same as the ones that collected the data. If all the data is collected in a correct and accurate way, combining these data sets with a tool like GIS can be a fruitful step towards a holistic approach in research on landscape and tourism.

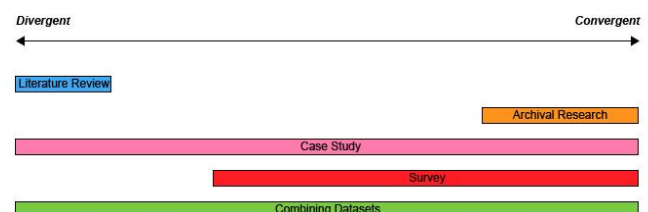
### 3.6 Comparative analysis

#### Theoretical – Practical

In our research we found that there are two approaches to the researching the reciprocal relationship between tourism and the landscape. One focuses on the general theory, and contemplates on the topic without being bound to a specific location. The other concentrates on researching in a spatially contextual specific manner. These two could also be referred to as theoretical and practical. Placing the different methods we researched into the spectrum that has these two categories as its extremes gave the first criterion of comparison (diagram 1).

Out of the methods we have researched, a literature review is the method that can be used best, and in fact can only be used, when the goal is to gain general, theoretical knowledge. On the other side of the spectrum, case study is a good method to generate contextual knowledge but it is unusable without obtaining a theoretical framework. A survey can be used to gain general knowledge (up to a certain point), however the sample used always relates to its spatial context. Archival research is a good tool to investigate the past, get an understanding of how contemporary situations came into being and thereby to critically reflect on a place’s historical development, and therefore it is always spatially specific. When all the datasets of the before mentioned methods and the other methods that were not dealt with are combined, as possible when using a GIS system, the research is neither purely general, nor purely place specific, in fact, if it is done right, it is always both.

Diagram 1.



### Divergent - Convergent

The methods we studied can also be compared on a different scale. We found that some of the methods play a predominant role in the orientating stages of a research, while others are mostly used to research a specific topic: divergent - convergent.

Literature reviews appear in most of the papers studied. As literature reviews compare a lot of different theories, it is used mostly in the orientating stages of a research, and is therefore a divergent method. On the other end of the spectrum, archival research seeks to dig deep into a specific subject. Case studies can be used both in a convergent and in a divergent way; case studies can be used to test a hypothesis, but they can also be used to raise general theoretical questions. In order to do a survey, the research already has to have been converged: indicators need to be set on which to test. When datasets are combined it can be both convergent and divergent, depending on which datasets from which methods are combined. For example literature can be used to determine which indicators to use in a survey, which can then be applied to a location.

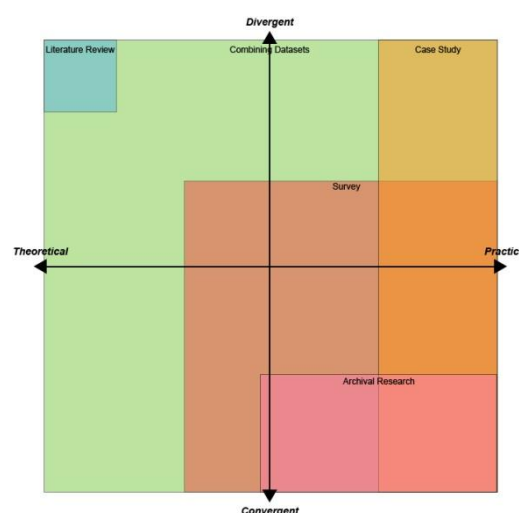
Diagram 2.



## 4 CONCLUSIONS

Since the research into literature research showed that a more holistic approach in the field of research into the relationship between landscape and tourism is needed in order to create a better understanding of this relationship, we will try to formulate a framework on how to approach research into landscape and tourism. By comparing the researched methods using the two scales, we can now give each method its right place inside this framework.

Diagram 3.



The framework itself, is in fact the combination of different methods, and thus of different datasets. Therefore, the method of combining different methods and datasets is in fact our framework, in which the other methods will be given their most fruitful position.

When researching the relationship between the landscape and tourism, no matter how (place) specific, getting an overview of every theory that is out there is a useful thing to do, as we've seen is the case even with case studies and surveys. As there is no holistic approach yet, this phase is very important: it prevents getting a one-sided view on the topic.

If researching the general theory is the goal of the research, this could be the end point. However, if the knowledge gained from the literature review should be applied, there are different methods for application that in the end should be combined in order to form a whole.

Surveys are efficient in researching multiple subjects on a set amount of indicators, while case studies usually research one subject. These two methods can, as all of the methods researched, work together. The knowledge gained from a case study can be applied in a survey and the other way around. Case Studies can be just as convergent as they can be divergent: they can work as a starting point of a research as well as an end point when researching the relation between the landscape and tourism. Surveys, however, need to measure specific properties (on either a landscape or on people), and therefore the properties that need to be measured need to be known; surveys are more convergent than divergent. Both case studies and surveys are on the

practical end of the horizontal spectrum (diagram 3), since they are applied to a case, whether it be a group of people or a landscape.

Archival research is the most convergent of the methods researched. When doing archival research on the relationship between the landscape and tourism, the archive into which to look in needs to be known and the research is usually looking for a specific event, or attitudes at a certain point in time. Notwithstanding the range of media that can be studied and the fact that something about the zeitgeist could be said using archival research, archival research is mostly used to get an understanding of how contemporary situations came into being and thereby to reflect critically on a place's historical development.

### Towards a holistic approach

In order to move towards the much needed holistic approach, there is a need for the field of research into the relationship between tourism and the landscape to recognize there is not one correct approach, but that the economical, ecological, geographical, sociological, anthropological, cultural aspects of the landscape are all interdependent. Research done with different approaches can be combined to make a whole. In our paper we have tried to find which methods can be used on different parts and different approaches of a holistic research into landscape. As only five methods were researched, our own research is not holistic itself, but it can form a first step towards the much needed holistic approach.

### REFERENCES

- Adam Beeco, J., Hallo, J. C., English, W., Giumetti G. W. (2013). The importance of spatial nested data in understanding the relationship between visitor use and landscape impacts. *Applied Geography* 45 (2013) 147-157
- Aikaterini Gkoltsiou, Theano S. Terkenli & Sotirios Koukoulas (2013) Landscape indicators for the evaluation of tourist landscape structure, *International Journal of Sustainable Development & World Ecology*, 20:5, 461-475, DOI: 10.1080/13504509.2013.827594
- Aklıbaşında, M., Bulut, Y. (2014), Analysis of terrains suitable for tourism and recreation by using geographic information system (GIS) *Environ Monit Assess.* 2014 Sep,
- Antoušková, M., Mikulec, J. (2011). Use of GIS to study tourism burden - case study of protected landscape area kokořínsko. *Acta academica karviniensia*, 5-16.
- Baxter, P., Jack, S. (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report* Vol. 13 No. 4, 544-559.
- Beerli, A., Martín, J. (2003). Tourists' characteristics and the perceived image of tourist destinations: a quantitative analysis—a case study of Lanzarote, Spain. *Tourism Management*, 25, 623-636
- Bremmer, H. (2013). Tourism Development in the Hot Lakes District, New Zealand c. 1900. *International Journal of Contemporary Hospitality Management*, 25:2, 282-298
- Brown, G. (2006). Mapping Landscape Values and Development Preferences: a Method for Tourism and Residential Development Planning. *Int. J. Tourism Res.* 8, 101-113
- Brown, G., Reed, P. (2011). Social Landscape Metrics-Measures for Understanding Place Values from Public 5 Participation Geographic Information Systems (PPGIS). *Landscape Research*, 37, 73-90
- Buckley, R. (2011). Tourism and environment. *Annual review of environment and resources*, pp. 397-416
- Chelsey Walden-Schreiner. Yu-Fai Leung. (2013). Spatially Characterizing Visitor Use and Its Association with Informal Trails in Yosemite Valley Meadows. *Environmental Management* (2013) 52:163-178
- Clout, H. (2006). The Marais Vernier: a landscape biography. *Landscape History*, 28:1, 63-76
- Cohen, E. (1978). The impact of tourism on the physical environment. *Annals of tourism research*. pp. 215-237
- Cohen, E. (1984). The sociology of tourism: Approaches, issues, and findings. *Annual Review of Sociology*, Vol. 10, pp. 373-392
- Crewe, K. (2011) Chandler's Hotel San Marcos: The Resort Impact on a Rural Town. *Journal of Urban Design*, 16:1, 87-104
- Denning, A. (2013). From Sublime Landscapes to 'White Gold': How Skiing Transformed the Alps after 1930
- Dorcas, A. (2003). Potential Roles of Landscaping in Sustainable Tourism Development in Nigeria: A Multivariate Analysis. *British Journal of Arts and Social Sciences Vol. 1* No. 11.
- Gosar, A. (1993). International Tourism and its Impact on the Slovenian Society and Landscape. *GeoJournal. Kluwer Academic Publishers.* 339-348
- Hammitt, W.E., & Cole, D. N. (1998) *Wildland Recreation: Ecology and management (2nd ed.)*. New York: John Wiley & Sons
- Holland, T. L., Romero, J.M., Davidson-Arnott, R., Cardille, J. (2011). Landscape changes in a coastal system undergoing tourism development: Implications for Barra de Navidad Lagoon, Jalisco, Mexico. *Investigaciones Geograficas*. Volume no 74. 7-18
- Hunziker, M., Felber, P., Gehring, K., Buchecker, M., Bauer, N., Kienast, F. (2008). Evaluation of Landscape Change by Different Social Groups. *Mountain Research and Development*, 28(2), 140-147
- Kienast, F., Frick, J., van Strien, M.J., Hunziker, M. (2014). The Swiss Landscape Monitoring Program - A comprehensive indicator set to measure landscape change. *Ecological Modelling*, 295, 136-150
- McCool, S. (1995). *Linking tourism, the environment, and concepts of sustainability: setting the stage*. Topical volume

of compiled papers from a special session of the annual meeting of the National Recreation and Park Association. pp.12-14

Pigram, J. (1980). Environmental implications of tourism development. *Annals of tourism research* VII (4)

Scolozzi, R. , Schirpke, U., Detassis, C., Abdullah, S., Gretter, A. (2014). *Mapping Alpine Landscape Values and Related Threats as Perceived by Tourists. Landscape Research*

Stake, R. (1995). The art of case study research. *Thousand Oaks, CA: Sage*. 49-68

# Comparison of research methodologies in ecological urbanism

M.G. van Rooij, N.T. Huveneers & O. de Reuver

*Urban Design and Planning, Eindhoven University of Technology, the Netherlands*

**ABSTRACT:** This paper reports on the use of three different methods to research ecological urbanism in urban green space on the city and neighbourhood level. The aim of the paper is to compare the three different methods on this topic and to conclude which method is the most suitable. Ecological urbanism shows a multidisciplinary approach on different scales. The field tries to work to a future with designs that connect to ecology and are not in contrary to the environment. With the changing climate, the growing world population, the urbanising society and the growing exploitation of limited resources, ecological urbanism can play an important role in this more sustainable future. To examine which method can be used in research on this topic, scenario, spatial analysis and case study are the scope of this literature review. Per method, five sources are reviewed in order to understand its importance for the topic. Scenario for example is a very useful method for talking about the future and in relation to that about ecological urbanism and sustainability. A disadvantage however is its subjectivity. Spatial analysis in contrary is objective. This method gives very detailed results on a specific topic, but these results can also be complex and hard to understand. Case study, lastly, is thoroughly when it comes to data collection, however this data cannot be generalised to a wider population. A comparison between the different methods on strengths, weaknesses, opportunities and threats will lead to the conclusion, which one of the method is the most suitable for the topic of ecological urbanism.

**KEYWORDS:** *Ecological urbanism, Urban green space, Scenario, Spatial analysis, Case study*

## 1 INTRODUCTION

In the context of the course *Research in Urbanism and Architecture*, on the faculty of the Built Environment of Eindhoven University of Technology, this paper is written in a group of three urbanism students. Ecological urbanism in urban green space on the city and neighbourhood level is the topic which is researched by three different methods. The aim of this paper is to compare the three different methods and to conclude which method is the most suitable in relation to this topic.

The three studied methods are scenario, spatial analysis and case study. Comparison of strengths, weaknesses, opportunities and threats of these methods in relation to the topic are used to answer the research question: *Which of the three methods (scenario, spatial analysis or case study) is the most*

*suitable for research of ecological urbanism in urban green space? And why?*

The climate is changing, the world's population continues to grow, there is an ongoing migration from rural to urban areas and the exploitation of limited resources grows (Mostafavi, 2010, p.1). With all these trends "[w]e have finally realized that we occupy a finite planet" (Cilliers, 2014, p.260) and sustainability as a shift in our way of thinking is needed. Sustainable architecture in this context is well developed, in contrast to the sustainability of the city. Ecological urbanism shows a multidisciplinary approach on different scales of the city and this paper highlights ecological urbanism in urban green space in special.

The field of ecological urbanism tries to work with designs that connect to ecology and are not in contrary to the environment, and therewith play an important role in a more sustainable future. Mostafavi (2010, p.3) describes this territory as the

capacity “to incorporate and accommodate the inherent conflictual conditions between ecology and urbanism”. Classical urban ecological studies focused on the bio-physical research of the urban environment and lack addressing its social context and applicability in planning, design and management. Recent urban ecology studies however demonstrate multidisciplinary approaches. (Breuste et al., 2013, p.675) Bridge (2001, p.154) explains this as “reinterpreting the city as a space intimately connected with nature”.

“[U]rban ecology can also contribute to critical thinking about how the structures of our daily routines have implications for the use of natural resources and the environment”, it provides the opportunity to think through this conceptual and spatial displacement of the city from nature (Bridge, 2001, p.155, 162). Spirn (2012, p.1) describes it as being critical to the future of the city and its design, with ecological urbanism as the framework for addressing the challenges from nowadays while fulfilling human needs.

*Interdisciplinary foundations of urban ecology* written by Young (2009), claims that urban ecology has a rich legacy of work, which should be used by creating new analytical tools for research. Spirn (2012, p.21) contributes to this by saying that “[m]uch is still not known about the urban natural environment and the processes that shape it, and there is great opportunity for future research.” These two examples reflect the relevance of research on this topic and therewith the importance of knowledge about suitable methods to study it. Especially because “existing knowledge needs to be applied in planning, design and management of cities and towns” (Breuste et al., 2013, p.676). Spirn (2012, p.21) emphasises in this context once again that the future of humanity is at stake: “whether we can adapt our behavior and settlements to meet the challenges we face [...] and whether we can do so in ways that are life-enhancing and life-expanding. Ecological urbanists have an essential role, not merely in producing safer and healthier urban habitats, but in making legible and tangible the systems that support life, and in changing the perception of what is possible.”

This paper is structured in such a way that the next part, the methodology, will present the process of the literature review and the three different methods. Followed by the results, the part which presents the studied sources per method and the use of the method in the five articles. The part of the conclusions consists of a comparison of the three methods and ends with a recommendation, which of

the three methods is the most suitable for research on this topic.

## 2 METHODOLOGY

As presented in the introduction, research on ecological urbanism is relevant and therewith it is useful to have knowledge about different research methods. The purpose of this paper is to gain information about suitable methods for research on ecological urbanism.

In order to write the paper, different tools and sources were used. All sources were derived from journals, like *Futures*, *Landscape and Urban Planning*, *Public Health* and *Urban Ecosystem*. After finding different sources on the topic of ecological urbanism in urban green space, three different methods were chosen and divided among the authors. The three chosen methods are: scenario, spatial analysis and case study. A literature grid is used as a tool to summarise the articles, review the methods, list strengths, weaknesses, opportunities and threats of the methods, and write an overall conclusion on the method. This overall conclusion is used for the comparison of the three methods, which resulted in the most suitable method to research ecological urbanism in urban green space on the city and neighbourhood level.

### 2.1 Definitions

#### 2.1.1 Scenario

Scenarios are a part of the field of futures studies. To make the field of futures studies easier to overview, different scenario typologies are distinguished. To deal with probable, possible and preferable futures (Carlsson-Kanyama et al., 2008, p.35) scenarios answer respectively to the questions *What will happen?*, *What can happen?* and *How can a specific target be reached?* These questions are linked to the categories of predictive, explorative and normative scenarios, which each exist of two types ‘Figure 1. Scenario typology.’ (Börjeson et al., 2006) Backcasting is hereby the process of building a path between the present and the sketched preferable future (Neuvonen et al., 2014, p.69). One of the generating techniques to collect the ideas, knowledge and views regarding the future is workshops.

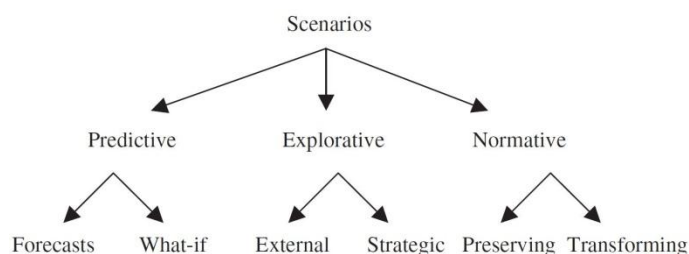


Figure 1. Scenario typology with three categories and six types (Börjeson et al., 2006, p.725).

## 2.2 Spatial analysis

Geographical Information Systems, hereafter referred to as “GIS”, is a tool within the method of spatial analysis. GIS is used to analyse, map and interpret data in order to understand relationships (Nutsford et al., 2014, p.1006) and patterns. Within the topic of ecological urbanism in urban green space, this tool provides information about accessibility, size and quality of green space.

## 2.3 Case study

Case study is an in-depth analysis of one object, a city most of the time. It is a research technique that uses observation, interviews and document analysis. Often this is a kind of research which is part of a further and larger research design. The intention of the research is to understand the object in its various aspects, complexity and potential developments, as thoroughly as possible. Case studies can be used in different ways. The method is most used in data analysis, which means collecting all information about an examined or tested object. Due to the single research unit, there is no determination of a variation between objects. Therefore case studies can be used best as a test or an example.

# 3 RESULTS

This section discusses the five different articles for the three methods, the use of the method per article and gives an overall conclusion on the method for the topic of ecological urbanism in urban green space.

## 3.1 Scenario

One of the five sources on scenarios makes the distinguishment between the futuristic society described in scenarios and the visionary habitat of the isobenefit city. The scenario method is used to

control the amount and position of amenities, which influences the equal level of well being. Acci (2013) states that urban quality lies in city centralities, which are amenities at the city level, and in fuzzy urban quality, which is daily local urban quality. The aim of the isobenefit city is that “the poor and the rich will enjoy an equal urban quality of the area, services and infrastructures” (p.7).

In contrary to the article of Acci (2013), which uses models, several other sources on scenario methods make use of workshops. The article of Carlsson-Kanyama et al. (2008) is one of them. In these workshops the involved stakeholders and the design of the workshops influence the images of a sustainable future and developments in local planning practice. The created normative scenarios and participative backcasting resulted in various ideas about a more sustainable everyday life and measures on different levels.

Besides Carlsson-Kanyama et al. (2008), Cilliers (2014, p.261) also states that “[p]articipation of local citizens into goal setting and sustainable future scenarios will ensure the long-term viability and success of reformatory endeavours”. Both articles use participatory planning, but Cilliers (2014) uses predictive instead of normative scenarios. The article argues that the South African perspective on the development of sustainable landscapes can contribute to global scenarios with regard to transdisciplinary planning approaches.

This last mentioned source made use of different methods, including scenarios. Neuvonen et al. (2014) in contrary uses pure scenarios, based on results from research with other methods. Just as Carlsson-Kanyama et al. (2008) this source made use of participative backcasting with normative scenarios and a backcasting approach in workshops, to understand the relevance of lifestyle-level changes in low-carbon futures. The article states that it is “a meaningful methodology in illustrating and describing how lifestyle changes could happen and how change in lifestyles can accelerate transitions towards sustainable societies” (p.75).

The last researched source of Wirth et al. (2013) also made use of workshops, but in contrary to all the others, the participants in the workshops were scientists from various disciplines. The article aims at integrating knowledge of both science and practice in scenario building. Several aspects of urban development and sustainability influenced, through the workshops, quality indicators for future urban living environments. The article concludes that the regional scenarios are suitable for opening up for future orientations and for identifying

possible urban development patterns and strategies, but not for direct decision support (p.11).

### 3.1.1 *Overall conclusion*

The most important strength of scenario is that it opens up the image of possibilities for the future. Another strength is the viability of images and measures of scenarios when created by workshops with citizen involvement. The broadness of scenarios can be seen both as a strength and as a weakness, depending on the usage. Other weaknesses of the method can be a lack of relatedness to the planning practice and a strong connection of scenarios to a specific context or situation, which limits the opportunity to generalise outcomes. The method offers opportunities for usage in various cultures, cities and countries, the method has however also several threats concerning the conclusions based on scenarios. Conclusions are for example dependent on the participants, their knowledge, values and goals, and the amount of participating people. But above all, caution is needed by the use of scenarios for decision support.

Ecological urbanism is however related to sustainability and sustainability deals most of the time with long term goals, which makes futures studies, and more specific scenarios, an appropriate method to use.

## 3.2 *Spatial analysis*

As written in the methodology, GIS is a research tool within the method of spatial analysis. In each of the five sources, GIS is used in combination with one or more other methods to research a specific topic and draw conclusions.

One of the sources analysed whether proximity to urban green spaces is related to human mental health (Nutsford et al., 2014). GIS is used to name six different spatial analysis, using both density and proximity of green space. Another used method is statistical analysis, to provide the research with information about anxiety/mood disorder treatment counts. The results of the research are very specific for the examined city and need to be generalised first in order to be useful in other cities.

Hillsdon et al. (2006) also used statistical analysis in combination with GIS. The relation between access to green space and levels of physical activity was examined. GIS is used to distinguish three measures of green space accessibility. In contrary to the previously mentioned source, a third research method was needed. A survey was used to gain information about the participants physical activity.

In contrary to the two previous sources, Herzele et al. (2003), used a GIS model to simulate different future policy scenarios. The combination of these two methods shows the originality of this research, because it attempts to “span a bridge between scientific theories and planning practice” (p.124), something that is rarely done in a format that can be implemented in policy and planning. The research was based on a two-step approach in which the accessibility and attractiveness of green space were taken into account. The accessibility of green space was hereby calculated with GIS.

The article from Charreire et al. (2012) also used a two-step procedure, but in contrary to the previous source, this research was based on a cluster analysis. The cluster analysis was used to identify several built environment patterns. Data was derived from GIS databases on accessibility to green spaces, accessibility of facilities and availability of cycle paths. A questionnaire was conducted among residents to retrieve data on the time spent on walking and cycling. The outcome of this research can be useful to determine urban health policies to promote a healthy lifestyle.

The last article of Rosa et al. (2014) used GIS to provide two indicators of data. The first indicator “accounts for the number of people that can have access to a particular open space” and the second indicator “weights the people or users with the distance from their location to the open spaces” (p.122). The results describe different scenarios in terms of ranking the accessibility of green spaces, which can be used as planning support tools in further research.

### 3.2.1 *Overall conclusion*

GIS as a tool, can be used to research spatial attributes such as the accessibility and attractiveness of urban green space. A strength of GIS is that very specific topics can be researched, because a wide range of variables can be added to the research to generate more detailed results. But the detailed results are also a weakness of GIS. This is because the results of a research, most of the time, need to be generalised in order to become useful in other cities or neighbourhoods. A threat which arises, when more details are added to the research, are the more complex results which only experts are able to understand. Using GIS as a tool in combination with, for example, scenarios can create results which give opportunities for further research.

### 3.3 Case study

In the five articles there is a difference within the research method. The first case study is used as a distance measurement (Barbosa et al., 2007). This data analysis is used to measure and compare the two different recommendations about the distance. First, that people should have access to green space within a 15 minute walk, this is 900 m. The other recommendation is 300 m. This research resulted in new research questions.

Similar to the first article, data analysis is used in the second article as well. Only in a different way with interviews and document analysis. Kabisch (2015) analysed how the service framework is organised in the current urban green structure of Berlin, Germany. The pressure of population growth is researched, the financial pressure on the municipal budget, what to do by a loss of expertise and the limited understanding of the benefits of green space between the different actors of inadequate communication.

McIntyre et al. (2000) also used data analysis in the third article. This article established the definitions of the term 'urban' in an ecological way and looked at the social sciences for guidance in a more quantitative description of what the urban ecosystem is. Information about the term urban ecology is provided and explained while using two case studies. The case studies used population density, economic characteristics, governance type and physical geography in two different cities.

In contrary to data analysis, the fourth article is a review of an approach to sustainable urbanism. In order to strengthen this approach, Oktay (2012) used the case of the Ottoman city where sustainable urbanism is used. The establishment of an environmental and human framework for sustainable urbanism is wanted here. The Ottoman city is an example of the topic and is not a case study itself.

In the last article a different approach is used. Moya Pelitero et al. (2009) did design-by-research, what means scenario thinking through a workshop and design something new after the research. This paper is an evaluation of a workshop about Tres Turons Park in Barcelona, Spain. Through scenario thinking and the processes of change they gathered three types of design results. This case study is about Tres Turons Park, with an interdisciplinary approach.

### 3.4 Overall conclusion

Ecological urbanism is related to sustainability on the city level, which is less developed than for

example sustainable architecture. Case studies can contribute to the understanding of this topic of ecological urbanism. The most important strength of this method is that it is about an object or city. The method creates new opportunities for the development of sustainable urban green spaces, especially in combination with other research methods. As a result, the subject can be analysed even more accurately. The weaknesses are that the method is limited to one topic or location and sometimes the outcomes can be misinterpreted. The opportunities are the subsequent researches after the questions that came up during the research. A threat is that only one variable can change the outcomes, if other data on the same subject is used. Overall can be concluded, that if new research questions are needed or research has to be done about only one object, this is a valuable method.

## 4 CONCLUSIONS

A disadvantage of scenarios is its truth. Scenarios are created images of the future and even if they are based on research, this qualitative method is subjective. The input of both science and practice is however a big advantage of scenarios, if created by workshops. This participation increases involvement and support for measures on sustainable cities and urban green space. Another advantage related to the topic, is its range. Scenarios are about different aspects; environment, but also society, politics and economy. This makes the scenarios and conclusions very broad and easy to implement in the planning practice.

GIS is a suitable tool to research urban green space, because the used databases provide much information about accessibility, size and quality. When using GIS as a research tool, there is the ability to use very specific information to research not only ecological urbanism, but also other specific topics. One of the disadvantages can be the complexity of the results of the research. GIS can be used in a multidisciplinary approach to research ecological urbanism, a combination with other methods is however mostly needed.

There are different approaches for case studies, which give examples of cities where they applied ecological urbanism, sustainability and green spaces. Because of the always changing ideas about urbanism and sustainability, case study is a well fitted method to research and explain them. This method can be very precise or very general. The advantages of this method are its depth and the

quantity of detail that is collected. The research method can be used when there are no large samples or participants available, but as a consequence the outcomes cannot be generalised which makes this method not always relevant or useful.

From the introduction can be concluded that research in ecological urbanism needs a focus on the future, has to be interdisciplinary and needs to be applicable in the planning practice.

Scenario for example is a very useful method for talking about the future and in relation to that about ecological urbanism and sustainability. A disadvantage however is its subjectivity. Spatial analysis in contrary is objective. This method gives very detailed results on a specific topic, but these results can also be complex and hard to understand, and there is almost always a different method required for the right research outcome. Case study, lastly, is thoroughly when there is information needed about a city or one object, but new questions always arise and further research is needed. Where GIS and case studies give examples and new opportunities, scenario research can explore future developments and therewith meets ecological urbanism better. GIS data needs to be generalised to become useful in other places and case study data cannot be generalised at all, scenario in contrary is a general method but the conclusions are cultural related. After comparison of the different methods on strengths, weaknesses, opportunities and threats, can be concluded that scenario is the most suitable method for ecological urbanism.

For further research on this topic, scenario is the best fitted method. Case study and GIS namely always need scenarios for a focus on the future and are less interdisciplinary. These two methods can however contribute to the usage of scenarios in the planning practice. But if only one of the methods should be the best, its scenario. This method is namely broad, takes related topics in consideration, is not one sided and the participation in workshops increases involvement and support of society.

## RECOMMENDATIONS

By further research on the topic of ecological urbanism, this paper recommends to use the method of scenarios. Therefore this paper recommends *Scenario types and techniques: Towards a user's guide* of Börjeson et al. (2006), this source provides the reader more background information about how scenarios work, the different types of scenarios and how they can be used.

## ACKNOWLEDGEMENTS

The authors of this paper would like to thank Ana Pereira Roders and Anne Marie Peter-van den Heuvel for their help, suggestions and valuable comments while writing this paper. Also Sukanya Krishnamurthy and Daan Lammers must be thanked for their interesting lectures during the course. The Swedish teachers of the course *Futures Studies and Forecasts* at Royal Institute of Technology in Stockholm and especially the main teacher Mattias Höjer for the provided background information on scenarios as a research method. And lastly, the Eindhoven University of Technology, who gave access to the database with articles of scientific journals.

## REFERENCES

- Acci, L. D', 2013. Simulating future societies in Isobenefit Cities: Social isobenefit scenarios. *Futures*, 54 (2013), pp. 3-18.
- Barbosa, O. et al., 2007. Who benefits from access to green space? A case study from Sheffield, UK. *Landscape and Urban Planning*, 38 (2007), pp. 187-195.
- Börjeson, L. et al., 2006. Scenario types and techniques: Towards a user's guide. *Futures*, 38 (2006), pp. 723-739.
- Breuste, J., Qureshi, S. & Li, J., 2013. Applied urban ecology for sustainable urban environment. *Urban Ecosyst*, 16 (2013), pp. 675-680.
- Bridge, G., 2001. Everyday Ecologies: Cities, Nature, and leaching Urban Ecology. *Journal of Geography*, 100 (2001), pp. 154-165.
- Carlsson-Kanyama, A., Dreborg, K.H., Moll, H.C. & Padovan, D., 2008. Participative backcasting: A tool for involving stakeholders in local sustainability planning. *Futures*, 40 (2008), pp. 34-46.
- Charreire et al., 2012. Identifying built environmental patterns using cluster analysis and GIS: Relationships with walking, cycling and body mass index in French adults. *International Journal of Behavioral Nutrition and Physical Activity* (2012), pp. 1-11.
- Cilliers, S., 2014. Sustainable urban landscapes: South African perspectives on transdisciplinary possibilities. *Landscape and Urban Planning*, 125 (2014), pp. 260-270.
- Herzele, A. van, Wiedermann, T., 2003. A monitoring tool for the provision of accessible and attractive urban green spaces. *Landscape and Urban Planning*, 63 (2003), pp. 109-126.
- Hillsdon, M., Panter, J., Foster, C., Jones, A., 2006. The relationship between access and quality of urban green space with population physical activity. *Public Health*, 120 (2006), pp. 1127-1132.

- Kabisch, N., 2015. Ecosystem service implementation and governance challenges in urban green space planning - The case of Berlin, Germany. *Land Use Policy*, 42 (2015), pp. 557-567.
- Mcintyre, N.E., Knowles-Yáñez, K., Hope, D., 2000. Urban ecology as an interdisciplinary field: differences in the use of “urban” between the social and nature sciences. *Urban Ecosystems*, 4 (2000), pp. 5-24.
- Mostafavi, M., 2010. Why ecological urbanism? Why now?. *Harvard Design Magazine*, 32 (Spring/Summer 2010), pp. 1-12.
- Moya Pellitero, A.M., Türkyilmaz, E., Türkyilmaz, C.C., Silva Elizario, J., 2009. The design of a productive landscape, Barcelona Tres Turons Park, A case study. *The new urban question – Urbanism beyond Neo-Liberalism*, 4<sup>th</sup> IFoU (2009), pp. 909-918.
- Neuvonen, A. et al., 2014. Low-carbon futures and sustainable lifestyles: A backcasting scenario approach. *Futures*, 58 (2014), pp. 66-76.
- Nutsford, D., Pearson, A.L., Kingham, S., 2014. An ecological study investigating the association between access to urban green space and mental health. *Public Health*, 127 (2013), pp. 1005-1011.
- Oktay, D., 2012. Human sustainable urbanism: In pursuit of ecological and social-culture sustainability. *Procedia – Social and behavioral sciences*, 36 (2012), pp. 16-27.
- Rosa, D. La, 2014. Accessibility to greenspaces: GIS based indicators for sustainable planning in a dense urban context. *Ecological Indicators*, 42 (2014), pp. 122-134.
- Spirn, A.W., 2012. *Ecological Urbanism: A Framework for the Design of Resilient Cities*. [Online] Anne Whiston Spirn, Essays. Available at: <http://www.annewhistonspirn.com/author/essays.html> [Accessed 25 December 2014].
- Wirth, T. von et al., 2013. Identifying urban transformation dynamics: Functional use of scenario techniques to integrate knowledge from science and practice. *Technological Forecasting & Social Change*, xxx (2013) pp. 1-16.
- Young, R.F., 2009. Interdisciplinary foundations of urban ecology. *Urban Ecosyst*, 12 (2009), pp. 311-331.