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# Developing a Digital Archive for Symbolic Resources in Urban Environments: The Latina Project

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## Abstract

The project described was funded to establish the foundation for a digital archival resource for researchers interested in how people interact with urban environments through graphic communications. The research was internally funded by Loughborough University as part of its Research Challenge Programme and involved two members of academic staff and two library staff. [1] Two PhD students also participated. The archive consists of a small number of images and acts as a proof of concept for this project and for future funding applications. It is hoped that an extended archive will be useful not only to visual communication researchers, but also historians, architects, town planners and others. This paper describes the data collection process, challenges facing the project team in data curation and data documentation, and the creation of the pilot archive. The creation of the archive posed challenges for researchers and Library staff. For the researchers:

- Choosing a small number of images as a discrete collection that demonstrated the utility of the project to other disciplinary areas;
- Acquiring the necessary knowledge and skills to enable good curation and usability of the digital objects, e.g. file formats, metadata creation;
- Understanding what the technical solution enabled, where compromises would have to be made.

For library staff:

- Demonstrating the utility of the Data Repository;
- Understanding the intellectual background to the project and the purpose of the Data Archive within the project;
- Clearly explaining the purpose of metadata and documentation.

The Latina Project has demonstrated the value of a true partnership between the academic community and the professional services. All parties involved have learnt from the creation of the pilot archive and their practices have evolved. For example, it has made the researchers think more carefully about data curation questions and the professional services staff identify more closely with the research purposes for data creation. By working together so closely and sharing ideas from our different perspectives we have also identified potential technical developments which could be explored in future projects. All members of the group hope that the relationships built during this project will continue through other projects.

[1] Academic staff: Drs Harland and Liguori. Library staff: Gareth Cole and Barbara Whetnall.

# Introduction

Harland's research critically analyses the role of graphic objects as urban objects. As such, images are essential to his research. Harland has a personal collection of circa 10,000 images collected over the course of his career and has published widely in the area. In discussions with academic colleagues he realised that this data could be shared more widely, and potentially used across disciplines, by increasing the accessibility and visibility of associated images. This in turn led to a collaboration with UK and international colleagues on a funding application. Although the intellectual element of the application was felt to be strong, there was recognition that the proposed project team had gaps in their knowledge concerning data management, archiving, and preservation. In addition, there was a lack of awareness of what technical solutions could be used to make future images visible and accessible.

Coincidentally and at the same time, Loughborough University was in the process of developing a research data repository and had recently appointed a research data manager, part of whose remit was to advise on areas such as this. Although Harland was not aware of these developments, fortunately one of his colleagues was and Harland contacted the research data manager for advice and information.

An initial meeting in November 2015 focussed on the opportunities and possibilities for the proposed funded project. Harland was reassured that there were a number of possibilities open to him at Loughborough (in short, either using the new data repository or the pre-existing publications repository). Following this meeting, Harland and colleagues progressed the funding application, and Cole and others advised on the data management plan. The outcome of this funding application is still awaited at the time of writing.

In addition to the main funding opportunity, Harland also worked with Cole on an internal funding application. Loughborough University makes small amounts of money available to its research staff to enable pilot or experimental projects to be conducted outside of large external grants. It was this funding which opened up an opportunity to work on the Latina Project archive. As will be seen, although the archive could be seen as a small scale piece of work, it took approximately one year to come to fruition from the first meeting of library and academic staff.

In addition to the archive, the internal money funded:

- The fieldtrip to Latina where approximately 700 images were taken, as well as meetings with Italian academics, local authority officials, journalists and street artists.

- A networking event at Robert Gordon University, where Harland gave a lecture on his research. This has developed into a Research Workshop held at Loughborough University on 11th January and involving academics from four UK universities, in addition to Cole.

- A conference paper in July 2016 presented by Harland and Liguori.

- The opportunity to employ two PhD students to explore how the data repository might benefit their research, and provide a public forum for dissemination (one of these is now published).

- A story map entitled "Traces of Fascist Urban Iconography in the Latina Province, Italy"[1]

As such, it is important to see the digital archive as one element in a wider research process. It was this wider environment that affected how the image archive developed and at what pace. However, before explaining the archive development process, it is useful to provide some background context on how photographic images are used as a research resource by different disciplines. This is useful because, in part, it explains some of the gaps in knowledge held by Harland, and other academics historically trained as design practitioners.

**Different Disciplinary Perspectives on Using Photographic Data**

As an almost universal form of image-making, photography serves many different purposes, from the personal to the professional. Before the recent explosion in digital technology, the making of photographs was simply understood as a mix of 'practical science, imagination, and design, craft skills, and organising ability' (Langford, 1986). Now, with the advent of digital technology, these different components are fully integrated in an instant and this forms the basis for a considerable part of the way some people, particularly the young, communicate, by the minute.

As a visual research method, photography is now being taken more seriously in social science disciplines such as sociology, health studies, anthropology, education, and human geography (Rose, 2012). By contrast, it is a well-established, practice-based method in art and design education, and in subjects such as graphic design it performs another role, frequently as the central device in a piece of visual communication, or within a fine art context it may be the art form. We are concerned here with its role as a practice-based method, and a transition of use from how photography is used in art and design to the way it used as the key visual element in photo-documentation.

An informal approach to 'photo-documentation' is common for practitioners who work in the so-called creative disciplines, such as graphic design, or architecture. In the professional practice of these fields, photo-documentation often supplements the early stages of project research and is used to familiarise the practitioner with a given context within which the form they create will eventually reside. As part of this process, photography may be used to inform others about important visual references that act as sources of inspiration and stimulate the design of objects (see Figure 1). Although these may appear to be randomly assembled, the juxtaposing of images will have been guided by the designer's intuitive sense of what needs to be communicated. However, quite often the images have no further use beyond a specific client project, having served their purpose. Consequently, such images are not usually thought of as useful data for others to use, and in this sense their organisation is unstructured and inaccessible.

This is in part because of the way students are taught in these fields; they are not generally introduced to the complexities of organising visual data for the purpose of academic research. Moreover, they will organise and analyse visual images, of all kinds, in ways that reflect individualised approaches to practice. It is highly unlikely images will be treated in the same way a social scientist tackles their visual data collection process. For example, a visual ethnographer will often deploy a particular methodological and theoretical approach to classifying, analysing and interpreting visual data. This would be an anathema to most professional design practitioners from an art

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[1]
  Traces of Fascist Urban Iconography in the Latina Province, Italy:
  http://lboro.maps.arcgis.com/apps/MapJournal/index.html?appid=2c22cde882884c0a92a413ab1419e4f1

and design background, who more often rely on the intuitive impulse that drives their desire to create. That said, visual ethnographers also work within a reflexive framework that acknowledges the arbitrary nature of the meanings associated with visual images (Pink, 2007). As such, more formal approaches to working with photographic images that serve research, rather than professional practice, presents a small challenge for those educated in creative disciplines, especially regarding the need for more explicit approaches to classifying, analysing and interpreting visual materials.

These contrasting approaches, between creative disciplines and social science disciplines, is at the heart of the process reported in this paper, and it is through the lens of information science that we facilitate this crossover.

# Creating the Latina Project Archive

The project set out to establish a pilot digital archive of photographic and audio-visual material specifically concerning the use of symbolic resources in urban environments. The archive utilises material generated from a fieldwork trip to Latina in July 2016, undertaken by Harland and Liguori.[2] A second pilot archive has also been created, through employing a recently graduated student to utilise the visual data from his PhD research to display the photo-documentation methods he used.[3] This provided an additional opportunity to test the relevance of the archive for use by current and future research students. A third archive was also created using work by current PhD student, but this is yet to be published. Harland is also investigating the possibility of opening up undergraduate work through a similar means.

As stated above, the fieldwork resulted in approximately 700 images. It was agreed that 10-15 images would be used for the initial archive in the pilot project. At an early meeting it was decided that Harland would choose a small collection of images to fit the project's needs and to test the opportunities and restrictions of the data repository. The primary project group consisted of two academics and two members of library staff.

## Choosing the Images

As this is a research-led project, it was decided at an early stage that the images would be chosen by the academic members of the project. However, before the final set of images was decided upon there was a discussion as to what type of images would be best suited for the pilot. Consideration needed to be given to the fact that although the images could be seen as independent entities they also needed to fit into the bigger picture. As such, it was agreed that the chosen set of images would be a standalone collection that moved from the macro to the micro.[4] This can be seen in the published images, where the first image "Latina Province, Italy" is an overview of the region looking west towards the coast of Italy, with both urban and rural environments evident.[5] In contrast, the final image in the collection "Wall Plaque, Borgo Grappa" is a single wall plaque within a small community in Latina Province.[6] As such, the images take the viewer from the general to the specific and tell their own story of the built environment. See Figure 2 for a composite image of all 16 photographic images featured in the archive. By choosing

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2   Latina Province, Italy (pilot study): https://figshare.com/projects/Latina_Province_Italy_pilot_study_/15534
3   The Graphic Image of Beijing: https://figshare.com/projects/The_Graphic_Image_of_Beijing/16086
4   For an theoretical explanation of this method, see: Harland (2016).
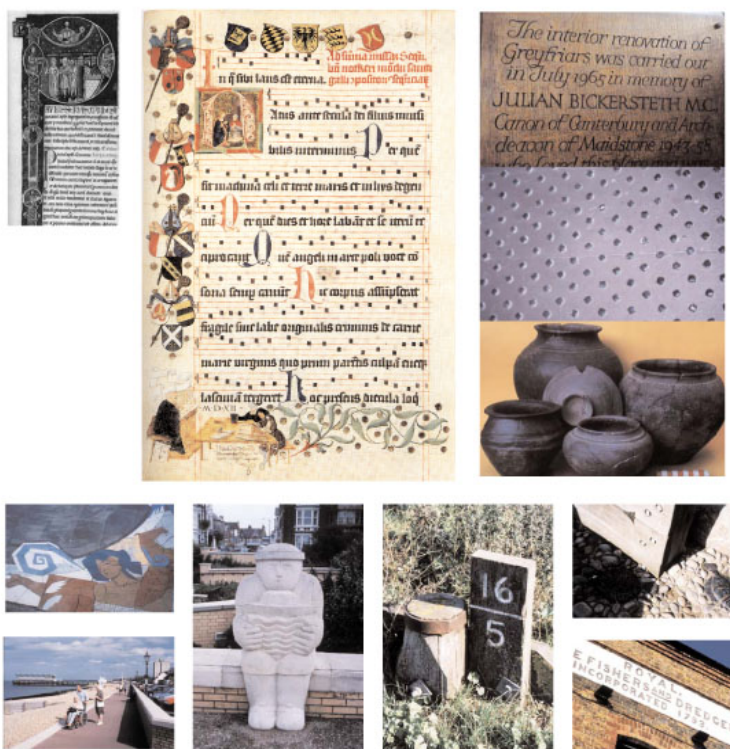5   Panoramic view of the Latina Province: https://dx.doi.org/10.17028/rd.lboro.3972003
6   Wall plaque, Borgo Grappa: https://dx.doi.org/10.17028/rd.lboro.3978375

images that fit together rather than a random selection it is hoped that potential users and re-users of the project will appreciate the academic reasons for the archive. Although the final choice of images was a research-led decision, the overall thematic approach was a group decision i.e. library and academic staff working together.



**Figure 1.** The use of photography in a design project to convey sources of inspiration, shown here as part of a design project report. (Source: Harland, personal collection).
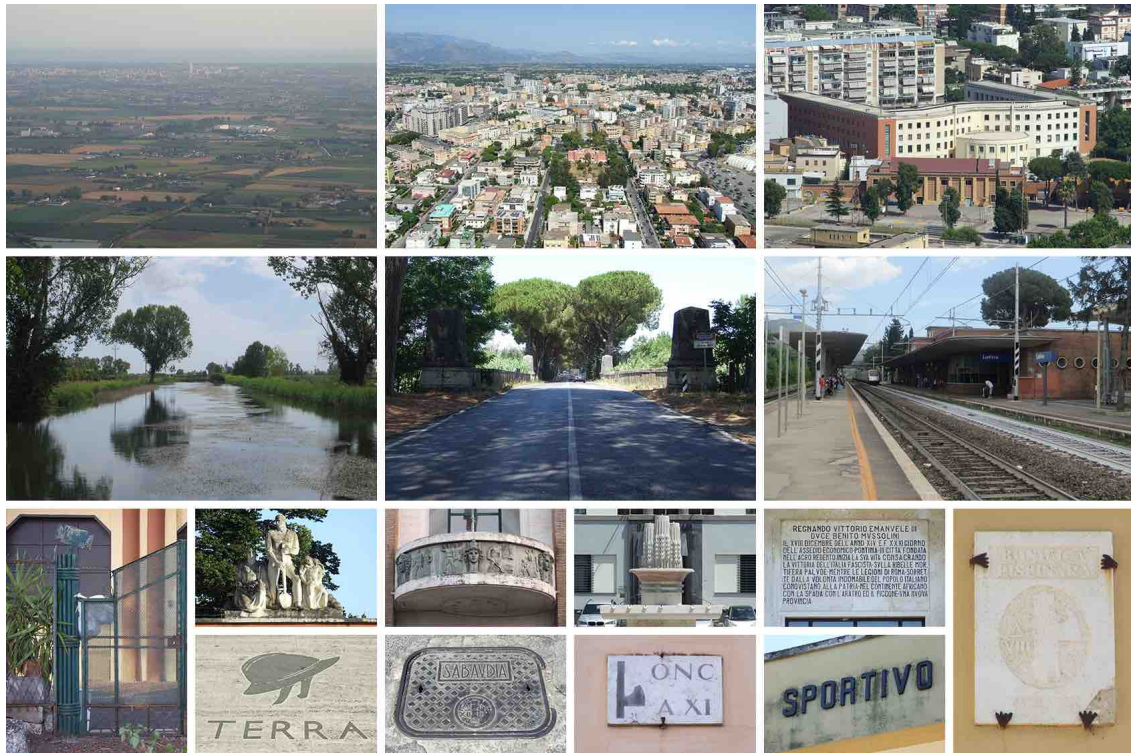
**Figure 2.** A composite image showing the 16 photographs selected for the archive, arranged from right to left, top to bottom to demonstrate the macro-micro nature of Latina's symbolic elements (Source: https://doi.org/10.17028/rd.lboro.3980442.v1).

As mentioned above, at the first meeting between Cole and Harland a number of potential solutions for a digital archive were discussed. It was recommended by Cole that the Loughborough Data Repository would be the best solution.[7] The particular advantages of the data repository were: the visualisations of the images when published; the ability to create individual projects as part of a larger group; the ability to include members who were not part of the University; and the clear and easy way to upload visual data.

We have taken most advantage of the 'Projects' functionality within the repository, as this allowed other members of the group to learn from each other's deposits and to improve their own as a result.[8] It is also possible to see these deposits before they go public so that the published version is the final version, rather than having to make a record public first and then get other members to comment on it.

**Metadata Needs and Approaches**

The Loughborough Data Repository has a small number of mandatory metadata fields and a couple of optional fields which are offered to all depositors at Loughborough. The mandatory fields are: Title, Authors, Categories, Keyword(s), and Description. In

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[7]  For more on the development of the data repository at Loughborough see: Cole (2016).

[8]  Figshare support page: https://support.figshare.com/support/solutions/articles/6000129103-projects-collaborating-on-figshare

addition, Item type is automatically chosen by the system (although this can be overridden by the depositor). A licence also has to be chosen before a record is made public. The optional fields are References and Funding.

For the project described in this paper it was felt that more fields were needed to help describe the images. Initially, these were File Format, Camera Type, Geographic Location and Date. However, after further discussion and reflection it was decided to change Date to Date of Image and Date of Object. This was felt to be important because the changing nature of the objects photographed and the historical context were both important elements within potential re-use scenarios.

Gaps in the documentation were also identified, e.g. the size of the original images had not been recorded. This fact is not relevant for Harland and Liguori's work, but it may be for an architectural historian or landscape planner. Consequently, for the archive to be useful for researchers outside of Harland and Liguori's research areas, additional information will need to be recorded when images are taken. This has an effect on the research methodology i.e. if more measurements and metadata are captured at the time the image is taken then fewer images can be captured during fieldwork, which is often limited by time. Further work is needed in this area by the research team to identify the best trade-off between metadata capture and number of images.

When deciding what to include in the existing metadata fields there was a long discussion about how keywords should be used by the project and how many keywords to include per record. Ultimately, it was decided to limit the number of keywords to approximately ten per record. The order of the keywords was also discussed and it was agreed that "Urban graphic object archive, Loughborough" and "Latina Province (Formerly Littoria Province), Italy" would be included in each record. For each specific record it was decided that the keywords should move from the macro to the micro to mirror the images in the archive. This was also suggested by the librarians involved as standard library cataloguing practice.

A small weakness in using the Loughborough Data repository is that the additional fields we chose are not automatically mapped to the DataCite Schema (unlike the core mandatory fields). As such, the fields are primarily used for descriptive and contextual metadata rather than for discoverability purposes.

We feel that we have reached a balance between discoverability and descriptive metadata whilst keeping the actual amount of metadata to a manageable level.

# Training Needs and Approaches

Although no dedicated training sessions were held for the academic members of the project, training was carried out during the regular meetings of the project group. The main themes for training can be split into: language, metadata and its uses, using the technology, and maximising the functionality of the data repository.

Before Harland and Liguori visited Latina, Cole and Harland met to discuss file formats and potential metadata requirements. This meeting was primarily about the main funding application but it was felt that spending some time on requirements for the Latina Project would be of use.

Initial sessions focussed on the functionality of the data repository and how the academic members of the group could use it to upload their images. As part of these sessions, the academic members gained hands on experience of the data repository. Later sessions had discussions about metadata (described above).

In all of these sessions, the use of language was important. The librarians in the group soon discovered that some of the language they used was not commonly understood by the academic members, e.g. abbreviations, describing metadata 'schemas'. As such, the librarians needed to edit how they described certain features. Metadata, its purpose and use, was perhaps the key area here. However, another area where language was important was around the functionality of the data repository. For example, it soon became clear that talking about 'projects' and 'collections' was confusing for the academics particularly when 'project' could easily be used to mean two different things in the same sentence, i.e. the Latina Project had a figshare project within the 'Urban graphic object archive, Loughborough' group.

Language could also be a problem the other way. For example, the academics could mention methodologies or leading researchers in the field which the librarians were unaware off. Working as a small group made it easier for all parties to change their use of language to enable everybody to understand each other. However, it did highlight a communication problem that could have limited the effectiveness of the project.

# Challenges of Working Collaboratively and How We Solved Them

As with all projects, particularly those which involve participants from different departments and research backgrounds, there were challenges which the project group needed to overcome. A number of these challenges have been discussed above but are worth repeating here: different vocabularies and the use of a common language which all members could understand; time constraints; differing perspectives on the purpose of the project; different research backgrounds. The use of language and vocabularies was discussed in the previous section so won't be repeated here.

Time constraints is an age old problem. The biggest issue for this project was finding time in all the project members' diaries when face-to-face meetings could be held. It was felt important that as many of these meetings were face-to-face and that all of the project members attended. The main reason for this has been discussed above in that the meetings were also used as ad hoc training sessions on various topics. As such, the meetings served two purposes – for members to provide updates on the project and for training. Because of the time constraints deadlines and time frames were agreed at each meeting for the next phase of the project. Each deadline was kept reasonable and all were achieved by the project members.

The biggest challenge faced by the group was overcoming the different perspectives each member brought to the project. This wasn't as simple as a 'research' vs a 'library' perspective. Although the majority of early exploratory meetings were between Cole and Harland, both of the main researchers (Harland and Liguori) come from different research backgrounds and disciplines. The two library members (Cole and Whetnall) also brought differing perspectives (research data manager and academic librarian respectively). These differences were exemplified in areas such as the importance of metadata and description information. Although compromises had to be reached, in many ways the different perspectives were actually a strength of the project. Having to explain the research project to the library staff made the researchers think more carefully about exactly what they wanted the archive to achieve, i.e. not just a collection of images but a complete standalone collection. This in turn led to the selection of the images described above. In addition, discussions around documentation (e.g. the size of the object being

imaged) made the researchers think about data collection methodologies. For the library staff, this project was the first time they had had to explain in detail the strengths and weaknesses of the data repository. Although not leading the research aims, the functionality of the data repository did affect what the final archive looked like. Adding additional metadata fields was a key area here, but so was the 'Projects' functionality. Discussions arising out of the project have led to suggestions from the researchers about how the functionality can be improved, e.g. around mapping locations and linking directly to a latitude and longitude. These suggestions will be fed back to the software provider for their thoughts.

# Future Work

In many ways the Latina Archive project was a proof of concept. It helped the researchers, as well as library staff, assess what the possibilities are going forward. In the long term, it is hoped that the Latina Archive can be the first of a number of smaller projects or archives based within a proposed grouping now called the Loughborough Urban Graphic Object Archive. Harland and others are already working on additional projects which can be uploaded to the archive over the next year, as well as existing work, such as the photographs from Harland's collection, many already used as case studies with accompanying written narratives, published in his recent book (Harland, 2016). It is also hoped that the archive, and the other methodologies used during the project, can be used as bases for future funding applications – both internal and external to Loughborough University.

Library staff are also keen to engage with the archive and it has already been used as an exemplar of how the data repository can be used by researchers to raise awareness of their research, even if they do not have a funder or publisher mandate to do so.

Although the project team was brought together to work on the Latina Project it is hoped that the connections formed over the course of the past year will be useful for future opportunities and work, not only research focussed but also potentially in understanding the needs of undergraduates in Harland's research areas and if data curation concepts could be integrated into undergraduate modules. All parties involved agree that the project has been successful.

# Acknowledgements

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