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A Heuristic for Improving Transmedia Exhibition Experience

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Abstract: The area of interest is transmedia experiences in exhibitions. The research question is: How to involve visitors in a transmedia experience for an existing exhibition, which bridges the pre-, during- and post-experience?

Research through design, and action research are the methods used to design and reflect on a transmedia experience for an existing exhibition. This is framed with literature about exhibitions and transmedia, and analyzed with quantitative data from a case-study of visitors in the exhibition; this is organizationally contextualized.

The contribution covers a significant gap in the scientific field of designing transmedia experience in an exhibition context that links the pre- and post-activities to the actual visit (during-activities). The result of this study is a preliminary heuristic for establishing a relation between the platform and content complexity in transmedia exhibitions.

Keywords: Transmedia, Transmedia Storytelling Exhibition, Social Media, Instagram

1. Introduction

Museums, zoos, aquariums and art galleries etc. have existed and been shaped by their environments and the changing tides of culture over the past 400 years. These institutions have evolved enormously and often independently in the last century, where studies indicate a subconscious co-evolution (Coe, 1986).

Researchers in the field of contemporary museums, art galleries, science centers, libraries and cultural organizations, still focus on change and need thereof; how they are changing, and how they will change in the future. In recent years, exhibitions have entered the experience economy and are, therefore, competing with other visitor- and tourism-stakeholders (Mossberg, 2003). In this

competition, recurring visitors expect new spectacular changes in exhibitions. One way organizations deal with this demand is by augmenting exhibitions with digital artefacts that allow new experiences with interactive elements (Opperman & Specht, 1999). Another is by experimenting with user-centered design through collaboration and co-creation with the visitors (Simon, 2010). The latter concentrates on cross-media initiatives that allow new interaction possibilities (Hall, 2013).

Nina Simon (2010) argues and discusses innovative design techniques and case-studies to make a powerful case for participatory practice. Other researchers focus on the pros and cons of transmedia initiatives in an exhibition context, and based on case-studies they present suggestions for improvement (Kidd, 2014; Hall, 2013; Kim & Hong, 2013; Pardo, 2011). However, these researchers do not focus on validating the suggestions with quantitative data.

Transmedia concepts have proved successful in enriching the experience with different products within the entertainment industry (The Dark Knight, 2008; Tron: Legacy, 2010; Halo 2, 2004). A transmedia experience is typically used to promote feature films, provide extra content to TV-series, add digital story layers to books, and to provide a fictional universe to specific products. Novel ways of applying certain aspects of transmedia are surfacing through experiments such as enhancing the experience of museums and exhibitions (Kidd, 2014; Hall, 2013).

Knowledge on transmedia in an exhibition context, based on quantitative data is still limited. Furthermore, within the field of exhibitions the current knowledge is even more limited and there is no research on visitors' pre-, during and post-experience. Through literature reviews, desk research and searching in databases with relevant search queries, the results were limited¹. Most of the contributions in this search result focus on the need for implementation of new services, technologies, and installations on a conceptual level. A few of the articles discuss the importance of informative content in the pre- and post-visit, but they do not focus on a coherent experience across pre-, during-, and post-experience. The research does not validate the conceptual design ideas with practical implementations, and there is no focus on how to involve the target group. None of the articles from the Google Scholar search were identified as being of interest for the research question, which supports our argument about a significant knowledge gap.

The knowledge gap is addressed with the paper's research question: How to involve visitors in a transmedia experience for an existing exhibition, which spans the pre-, during- and post-experience?

2. Transmedia in Exhibitions

The research field of transmedia is continuously practiced and investigated by a number of researchers. Marsha Kinder coined and introduced the term transmedia in 1991 (Kinder, 1991). One of the leading transmedia practitioners today, Jeff Gomez, defines transmedia as:

"It [transmedia] falls under the rubric of crossmedia, but while crossmedia can imply any method, strategy or content that iterates itself over various distribution methods, transmedia implies a design sensibility customized to the message at hand, which also leverages the strengths of each platform and promotes dialogue with the audience." (Gomez, 2011).

This is only one definition among others like Jenkins' (Jenkins, 2006). When digging further into the field of transmedia, it is impossible to ignore the term transmedia storytelling, defined by Henry Jenkins as a story that "... unfolds across multiple media platforms, with each new text [video, print, audio etc. (Ed.)] making a distinctive and valuable contribution to the whole." (Jenkins, 2006, p. 95-96).

This definition has given rise to discussion on how to approach transmedia experience in practical contexts. Concepts that initially have transmedia experience as an objective can be defined as top-down productions; contrary to bottom-up productions, where the primary product is expanded with a transmedia experience (Ryan, 2013a). The success of a transmedia initiative is hard to measure objectively as it depends on many different variables like gathering, engaging and retaining the audience, and at the same time how well each medium succeeds in enriching the experience individually, thereby contributing to the proper functioning of the whole. Therefore, the measuring is usually done with subjective forms of success like observing and evaluating against tightly defined criteria (Long, 2011). Another approach by which existing transmedia initiatives have been measured, and continue to be measured is through the number of participants (Bole, 2013).

The state of the art research on transmedia experiences can be divided into three sub categories: A cultural, a narrative, and a design category.

The cultural category focuses on how a transmedia production fits into participatory cultures and on the effects of these productions on groups of audiences. They also investigate and elaborate the social networks of transmedia storytelling, and the audience's behavior within the field of participatory culture and engagement (Jenkins, 2006; Bolin, 2007; Dena, 2008; Evans, 2008; Perryman, 2008; Lemke, 2009; Evans, 2011; Beddows, 2012; Jensen & Vistisen, 2012; Marwick, Gray, & Ananny, 2013).

The narrative category deals with the narrative part of transmedia. The approach is similar to the design category, although it focuses on developing fictional universes and characters. The researchers mainly concentrate on providing guidelines and structures wherein transmedia can be conceived and shaped (Richardson, 2010; Alexander B., 2011; Stackelberg, 2011; Wolf, 2012; Ryan, 2013b; Long, 2007). Researchers also present different ways of considering the migration of properties of fictional characters and narratives from a representation of fictional content to reality (Herman, 2004; Scolari, 2009; Alexander E., 2013).

The design category focuses on how to design a transmedia story and provides guidelines and principles of good practice. Generally, the researchers in this category suggest frameworks within which a plan for implementing and distributing a transmedia production can be created and executed (Klastrup & Tosca, 2004; Miller, 2008; Bernado, 2011; Pratten, 2011; Phillips, 2012; Dowd, Niederman, Fry, & Steiff, 2013; Spaulding, 2012; Spaulding & Faste, 2013; Long, 2007; Giovagnoli, 2011; Dowd, Niederman, Fry, & Steiff, 2013).

Some research covers all three categories where the experience is fragmented to identify, understand, and explain the different effects of the transmedia storytelling (Aarseth, 2006; Dena, 2009).

This study contributes to the design category, focusing on how to involve visitors in a transmedia experience in an existing exhibition by designing, implementing and evaluating a part of a transmedia experience.

Most of the research conducted in the field of transmedia is still focusing on defining the term, presenting guidelines or recounting earlier transmedia concepts. At the same time, the boundaries that indicate when a subject is within the definition of transmedia are continuously restated (Jenkins, 2012). In the existing body of knowledge about transmedia experience, there is a significant gap about how to involve visitors in a transmedia experience in an exhibition, and there are no consistent methods to evaluate the impact and gauge the results of a transmedia experience. This study contributes with a quantitative digital data evaluation, which drives the design further. We term this; data driven design for a transmedia experience in an exhibition.

2.1 Organizational Context

North Sea Oceanarium is a tourist attraction located in northern Denmark and is Northern Europe's biggest aquarium measured by water capacity. The exhibition is covered by both the national and international laws and conventions of zoo facilities and offers knowledge regarding the North Sea and its surroundings. The North Sea Oceanarium is a government approved zoo facility, and it is a non-profit organization where profit is dedicated to develop the exhibition and/or related organizational development. The staff at North Sea Oceanarium comprise 35 full-time employees plus 35 seasonal employees.

North Sea Oceanarium is a conventional exhibition, where the organizational responsibilities are also conventionally divided between the exhibition, where the pre-, during-, and post visit are also divided between a marketing, exhibition, and store department respectively. In short, the marketing department reaches potential customers before the visit, the exhibition department provide the exhibition experience during the visit, and the store department offers merchandise in the shop placed after exiting the exhibition, but before exiting the zoo facility; i.e. after the exhibition visit.

The core visitor experience is located in the physical exhibition area, but the pre- and post-visit have not been understood by the organization as a part of the experience. This is illustrated in Figure 1.

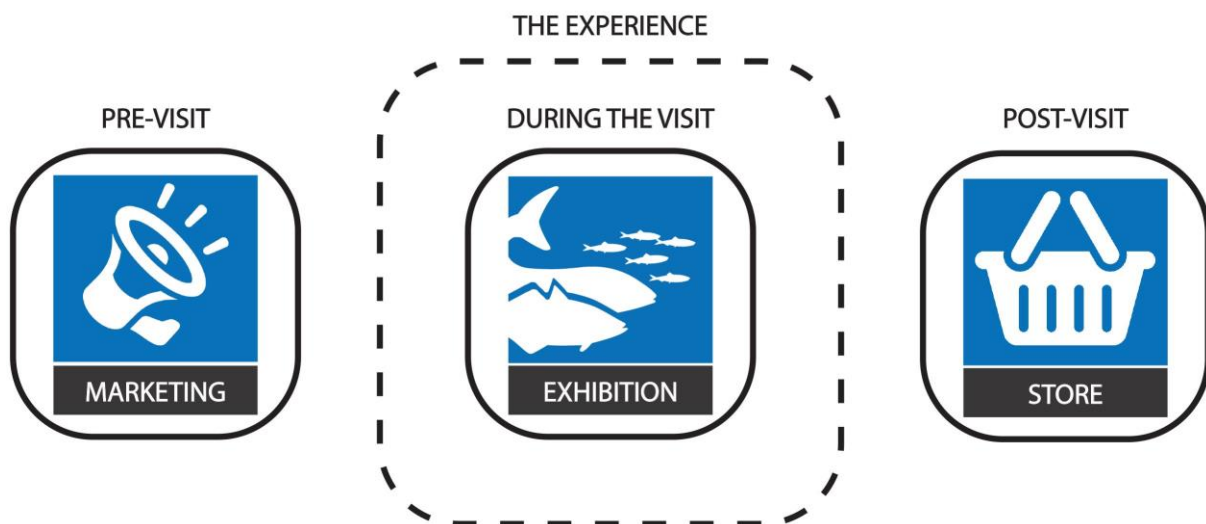


Figure 1. An illustration of the three visit phases, where the dotted box is where the actual experience is located.

Today the organization is represented on many different media platforms with information, content and reviews about the exhibition (TripAdvisor, Inc., 2016; Wikipedia, 2016). The social media activity is primarily located on Facebook in contrast to the low activity on Instagram. However, the content on the different media platforms does not contribute to a transmedia experience, as those contain the same information about the exhibition adjusted to the different media platforms; and according to Jenkins definition (cf. "Transmedia in exhibitions") the content or text on each platform is not making a distinctive and valuable contribution to the whole. At the moment, North Sea Oceanarium is not represented on Twitter, Snapchat, or any other social media.

2.2 The Case-Study: Instagram

There is a potential for including the pre- and post-activities as part of the experience and thereby extending the exhibition with a transmedia approach, where the physical exhibition is the core media platform (Davidson, 2010). The focus for this study is to experiment on a part of the wider transmedia concept that can be designed, implemented, and evaluated.

At North Sea Oceanarium there is no tactical focus on promoting user driven content on social media; for example, there is no systematic recognition of visitors' content contributions on Trip Advisor, Facebook, and Instagram. This is an area with potential, where the organization can expand the visitors' experience by promoting user-generated content that can strengthen both visitors' learning and engagement (Russo et al. 2007:26). Furthermore, user-generated content also contributes to one of Jenkins seven core principals termed performance, to develop a transmedia experience. Performance denotes the user's participation, engagement and social activity. To add performance, the user needs to be encouraged to actively engage and to share the experience socially; e.g. by blogging, producing videos and sharing on social media (Jenkins 2010).

The exhibitions are typically limited to prioritize Facebook over other social services (Groneman, 2014), this tendency can also be identified at North Sea Oceanarium. Therefore, Instagram is chosen as the media platform to explore promoted user-generated content, as Instagram is a social media, where North Sea Oceanarium was identified as a platform with no organizational intended experience activity. Furthermore, the collection of user-generated photo material reflects the visitor's own perspective on the exhibition, and therefore constitutes both a complement and a corrective to the stories that already exist in the exhibition (Giersing, 2014). In this way, Instagram as a platform has the potential to make a distinctive and valuable contribution to the whole exhibition experience.

3. Case Study

A case study was conducted over two iterations with focus on promoting Instagram activities as part of the exhibition. The aim was to motivate the visitors to generate content on Instagram during visits. The purpose was to extend the visitors' experiences across pre-, during and post-visit, as shown in the Figure 2. There were not offered any extrinsic motivation like gifts, redemption incentives, or prizes to involve the visitors.

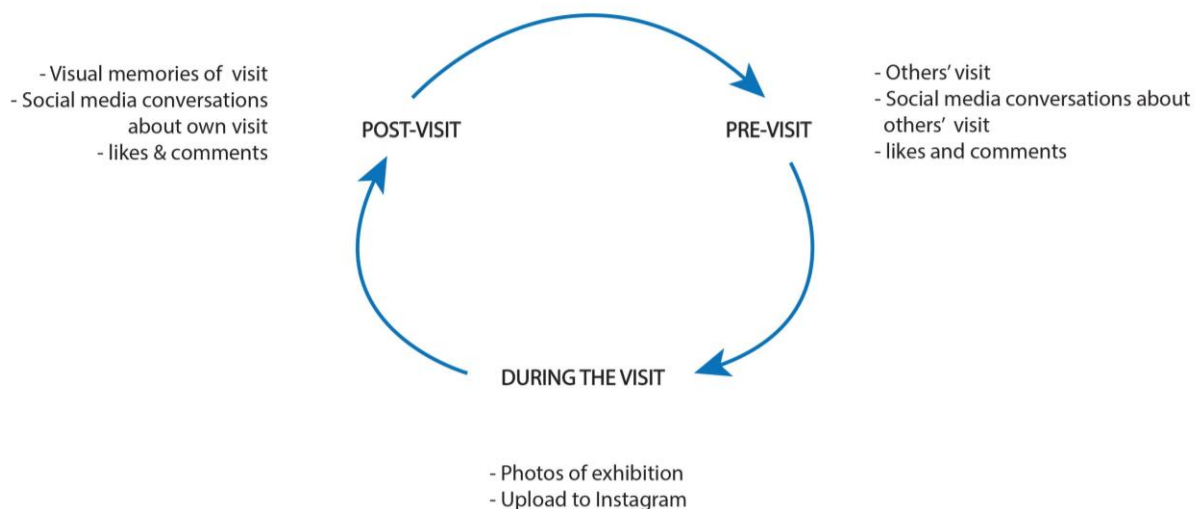


Figure 2. An illustration of the three visit phases and their different activities and content

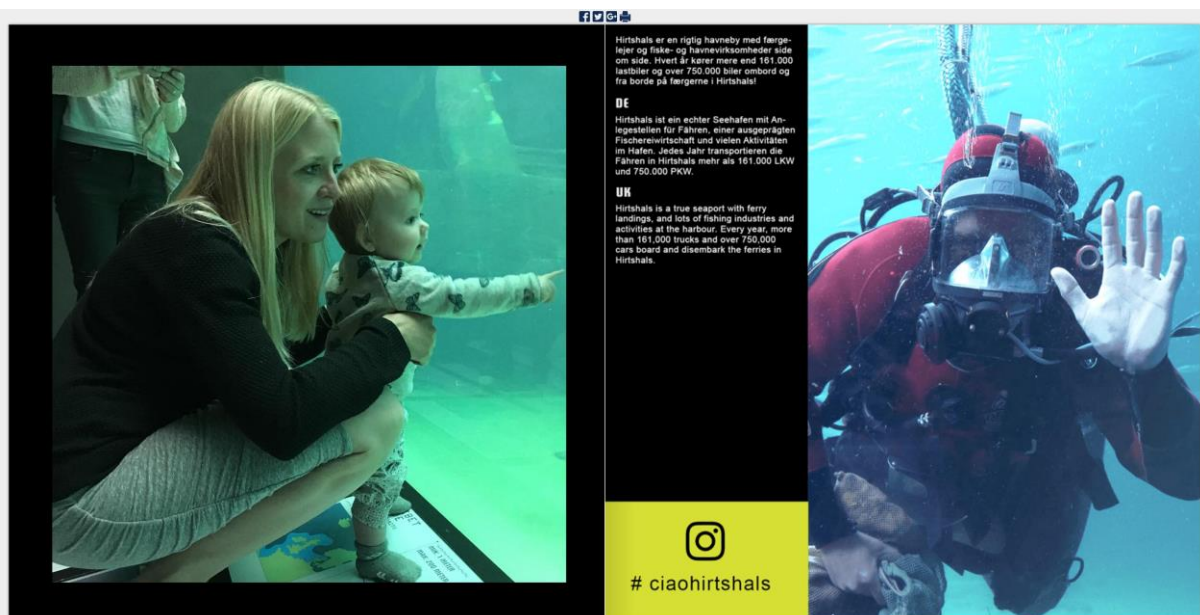
Content generated during the visit creates post-visit content for previous visitors, which feed pre-visit content for possible future visitors. The content on Instagram thus provides entry-points to the exhibition both before, during, and after the visit at North Sea Oceanarium; all with the purpose of improving the experience and at the same time leading to a possible increase of visitors.

During the Visit: During the visit, visitors are encouraged to take photos at different spots and share experience on Instagram. Six different Insta-spots are marked with a green floor labels with some unique hashtags in relation to the location. An example of one of the Insta-spots is illustrated in Picture 1.



Picture 1. A picture of one of the Insta-spot locations and the floor label with the hashtag and a small description in three languages; Danish, German and English.

Post-Visit: After the visit, uploaded photos create social media activities such as comments and likes from the previous visitor's network. Additionally, the previous visitors had the possibility to compile a photobook with their Instagram photos from the visit, which could be downloaded, printed or shared on the social media. By having different hashtags, it is possible to generate a photobook, where the different photos are connected to additional facts about the specific locations as seen in Picture 2. The photobook consists of 13 pages in three different languages; Danish, English, and German. A link to the photobook was automatically sent to the visitor's mail.



Picture 2. A picture of one of the pages in the photobook.

Pre-Visit: Previous to the visit, the visitors' social media networks have the possibility to explore photos uploaded on Instagram with the promoted hashtags. Hereby the social networks will get an entry-point to the exhibition from other visitors' perspective as shown in the Picture 3. The people in these social media networks are potential future visitors, which is also important to marketing.



Picture 3: A photo collage of the Instagram photos with the hashtag #nordsøenoceanarium.

4. Social Media Impact

The first iteration promoted the Instagram activity in the exhibition through conventional methods. The promotion was constructed to resemble any other promotion conducted for new activities in the exhibition. Big posters and printed flyers with information about the Instagram activity, were placed in the entrance. The flyers were also placed on all Instagram spots. The printed flyer is illustrated in Picture 4. Furthermore, the exhibition guides also offered visitors an introduction at the beginning of the exhibition. All department managers were informed in person and were asked to inform their staff.



Picture 4. A picture of the two inner pages from the information flyer.

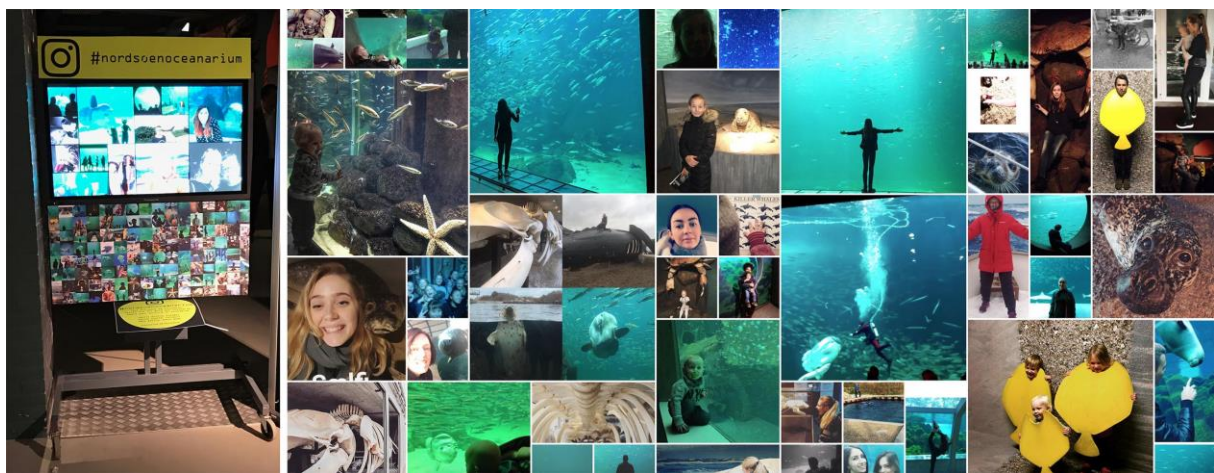
The first iteration of the experiment ran from July 7th, 2016 to October 3rd, 2016. In this period the exhibition had 96.331 visitors. The Instagram activity generated 137 posts and triggered 1.199 likes and comments, with a total social media reach of 15.034 persons. The numbers for the different Insta-spots are shown in Table 1.

Table 1. A table with the results from the first iteration.

	#hirtshals wind	#hirtshals fish	#hirtshals crab	#hirtshals cafe	#hirtshals seal	#ciao hirtshals	Totally
Posts	42	26	25	6	25	13	137
Reach	7.729	1.430	1.004	593	2.107	2.179	15.034
Likes & comments	531	164	103	61	201	139	1.199

Data collected from the first iteration showed a lower amount of content generated per visitor. This was discussed in the organization, and a hypothesis for the low activity was discussed: Too many hashtags complicated the experience and had affected the motivation to engage. And the conventional promotion methods did not have the desired effect. All in all, data confirmed that the Instagram activity was not functioning optimally.

In continuation of results gained from first iteration, the Instagram activity was re-designed to have only one hashtag and function by itself without the conventional promotion methods. All conventional promotional materials were removed from the exhibition and the guides were told not to actively offer information about the Instagram activity. Instead, a big screen with a controlled live feed from the Instagram hashtags were displayed in the exhibition – in the hallway between two major exhibition halls. The screen was decorated with visitors’ Instagram photos and the name of the hashtag they had to use to be displayed. Picture 5 shows the big screen and an example of the content on it. All the green floor labels, on the six spots, were covered by the same new hashtag #nordsønoceanarium.



Picture 5. A picture of the big screen and the content on it.

The second iteration of the experiment ran from October 15, 2016 to November 15, 2016. In this period the exhibition had 14.376 visitors. The Instagram activity generated 57 posts, triggered 1292 likes and comments and achieved a social media reach of 12.938 persons (Table 2).

Table 2. A table with the results from the second iteration.

	#nordsøenoceanarium
Posts	57
Reach	12.938
Likes & Comments	1.292

The only difference between the two iterations of the case study is the already mentioned number of hashtags, and the screen in the hallway instead of the conventional promoting methods (Figure 3). Of course, the duration and number of visitors differs, however this is allowed for by looking at the results per visitor. Table 3 lists how many times more effective the social media impact of iteration two was compared to the first iteration.

The second iteration shows a significant increase of posts, reach, likes and comments per visitor. Compared to the first iteration the number of posts is 2.79 times more effective, the reach is 5.62 times more effective, and likes and comments are 7.77 times more effective. This shows an improvement of both the experience and marketing. Moreover, the organizational effort was minimized by replacing the conventional promoting methods with the big screen (Figure 2).

Table 3. A table with the overall effect and social media impact according to both iterations.

	Iteration 1	Iteration 2	Relative social media impact
Posts per 1000 visitor	1.42	3.96	2.79
Reach per 1000 visitor	160	899.97	5.62
Likes & Comments per 1000 visitor	12.45	89.87	7.22

The case study shows that the increased impact can be explained by a combination of the reduced number of hashtags and the use of the big screen (Figure 3). These changes resulted in a reduced complexity of the Instagram activity and thereby made it easier for the visitors to participate.

The big screen with other visitors' photos seems to work as an entry-point for the Instagram experience, where the photos on the screen are results of other visitors' visits; thereby creating expectations for newly arrived visitors. The big screen might also function as a reminder to take photos during the visit. The opportunity to be featured on the big screen can also be a motivational factor for involvement. Generally, the Instagram activity is communicated significantly more effectively through the big screen than through conventional promotional channels.

The relative reduction in the number of hashtags is much more effective in iteration two, probably because it is easier to remember and use only one hashtag rather than six. Another reason could also be that the activity in iteration two was not communicated as limited to fixed Insta-spots, but opened the possibility to take photos anywhere in the exhibition. This was also possible in iteration one, however the idea of the photobook communicated a fixed link between Insta-spots and photos. From the photos, it is clear, that the green floor labels in iteration two works more as a reminder to take photos at different places in the exhibition, rather than being limited. No requirements from the activity itself encourage the visitors to become involved in the complete activity, as in iteration one with the idea of the complete photobook. However, the visitors could upload an incomplete

photobook. This seems to be more convenient for visitors to adjust their involvement according to their interest. To this point, we conclude a heuristic for transmedia exhibition experience:

The more platform complexity, the less content complexity.

An increase in platform complexity to the user must be reduced by a decrease in the content complexity to the user and vice versa. In Figure 3 the number of platforms in use in the case-study is illustrated.

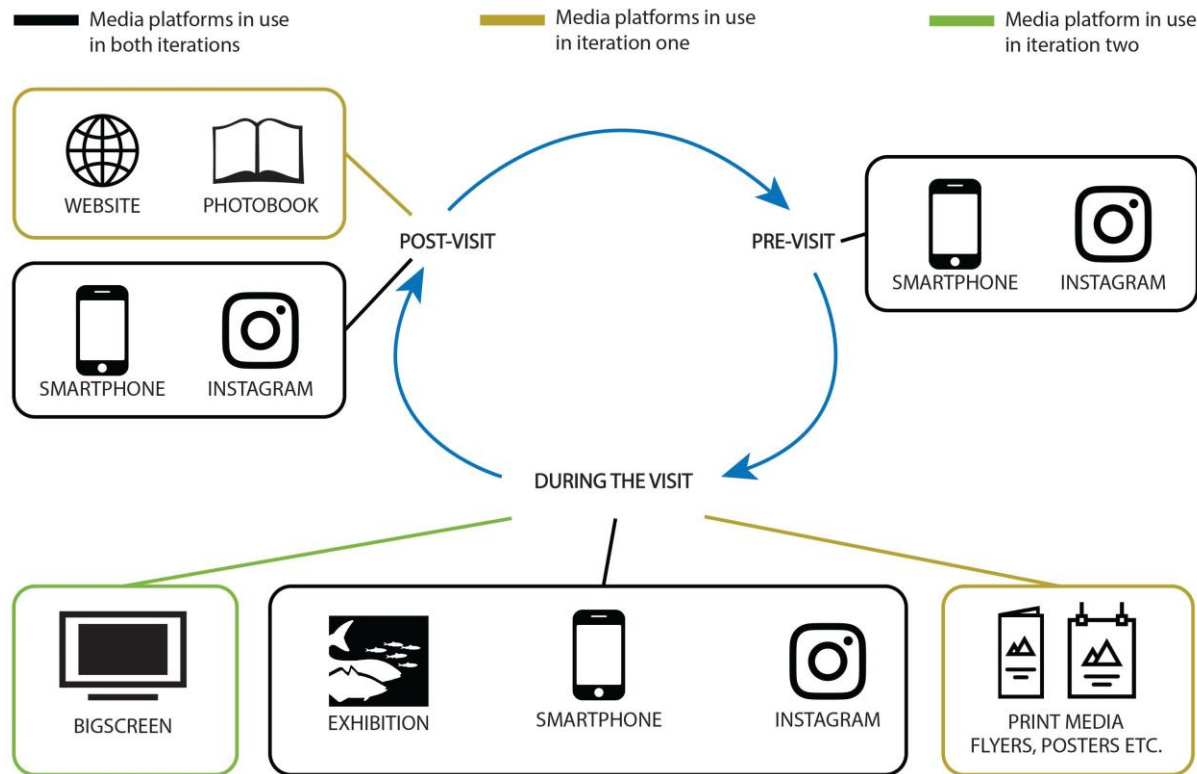


Figure 3. An illustration of the three visit phases and the different media platforms in use according to both iterations.

As illustrated in Figure 3, the actual number of platforms was also decreased from iteration one to two: The print media, website, and photobook were replaced with the big screen. This platform complexity reduction, has also according to the heuristic for transmedia exhibition experience contributed positively to the user experience.

There is clearly an interesting relation between platform and content complexity, social media impact, and user experience for transmedia exhibitions. In a practical organizational context, it would be useful to have a deeper understanding of this correlation, however further research is needed, where the following research question is posed: Is it possible in a meaningful and generic way to measure user experience as a function of platform and content complexity and social media impact?

5. Conclusions and Further Perspectives

In this paper, we investigated how to involve visitors in a transmedia experience for an existing exhibition, that spans the pre-, during- and post-experience. We have experimented with different communication methods to ensure the involvement of visitors. To this point, the case-study shows that presenting other visitors' experiences is a more efficient entry-point than conventional promotion methods. Moreover, the case-study shows, that a decrease in content complexity was

necessary because of the decrease in platform complexity. To this point a heuristic is formulated for transmedia exhibition experiences: The more platform complexity, the less content complexity.

The generated knowledge through quantified digital data contributes with new knowledge to existing research on transmedia in an exhibition context, with focus on the design category. And to this point, we argue for more data-driven design of transmedia exhibitions. Of course, this paper is only the first stepping-stone towards building a more comprehensive framework for transmedia exhibitions. Future research could show other interesting and organizationally useful correlations between pre-, during-, and post- transmedia exhibition experiences; both by experimenting with other platforms and with social media content.

Note 1: When searching for research on the visitors' pre-, during and post experience in a museum and/or in an exhibition, the result in Aalborg University Library database is only 14 peer reviewed articles. The actual search was done with the terms "museum(s)" and/or "exhibition(s)" containing "visitor(s)", "pre", "during" and "post". The abstract descriptions have been studied but none of them provide significant knowledge about the area of interest. When conducting the same search on Google Scholar, it results in too many search results (+80.000), because the terms "pre" and "post" are used in many different situations in the museum and exhibition context. By adding the term "transmedia" and "experience", the search results were narrowed down to 290.

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