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Researching the experiential value of interactive media exhibits

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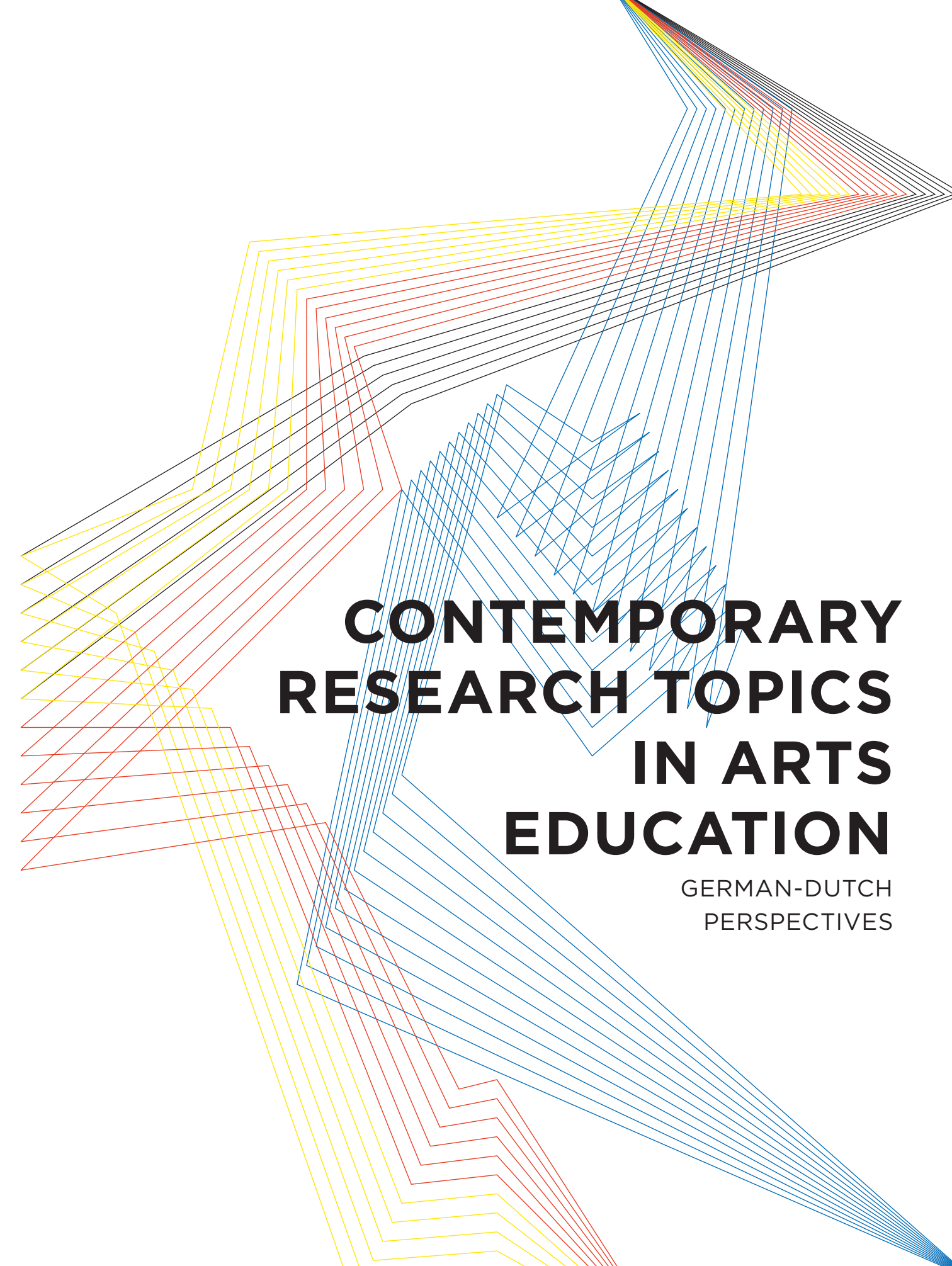
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Contents

PREFACE

Winfried Kneip

Board Member, Council for Arts Education 05

Kornelia Haugg

General Director for Vocational Training and Lifelong Learning,
Federal Ministry of Education and Research [BMBF] 07

CHAPTER I: INTRODUCTION

Contemporary research in the field of arts education: German-Dutch perspectives

Eckart Liebau, Sebastian Konietzko, Council for Arts Education 10

CHAPTER II: DIGITALIZATION AND ARTS EDUCATION

Introduction

Benjamin Jörissen, Council for Arts Education 16

Digitalization and arts education – New empirical approaches

Research Group DiKuBi-Meta (Subproject 1): Benjamin Jörissen,
Friederike Schmiedl, Elke Möller, Lisa Unterberg; *Research Group MuBiTec:*
Marc Godau, Linus Eusterbrock, Daniel Fiedler, Matthias Haenisch,
Johannes Hasselhorn, Jens Knigge, Matthias Krebs, Melanie Nagel,
Christian Rolle, Maurice Stenzel, Verena Weidner 22

This thing called “handelingsverlegenheid”. Teachers’ lack of confidence in teaching music in Dutch primary schools: a problem that could be overcome by applying supportive technology?

Benno Spieker 30

Researching the experiential value of interactive media exhibits

Bernadette Schrandt 36

Technology and Artistic Learning: the Role of a Learning Man- agement System in Performing Arts Education

Jaco van den Dool, Wander van Baalen 44

The Culture of Digitalization and the Digitalization of Culture

Daniel Martin Feige 52

CHAPTER III: RESEARCH ON THE IMPACTS OF ARTS EDUCATION

Introduction

Christian Rittelmeyer, Council for Arts Education 60

Measuring the impact of creative dance and physical theatre?! The quest for effects on motor creativity

Esther Pürgstaller, Nils Neuber 64

On the impact of productive and perceptive activities in art classes on creativity development in the fifth grade

Nicole Berner, Caroline Jacobi-Theurer, Wida Rogh 74

Intended Outcomes and Values of Arts and Cultural Education Researching Arts education Policy Goals in the Light of 21st Century Skills

Edwin van Meerkerk 84

Arts Education: What is it good for?

Teunis IJdens 92

CHAPTER IV: EPILOGUE

Epilogue

Zoë Zernitz, National Centre of Expertise for Cultural Education
and Amateur Arts [LKCA],
Jan Jaap Knol, Director of the Boekman Foundation 102

APPENDIX

Endnotes

110

Curricula Vitae

120

Institutions

125

Imprint

Researching the experiential value of interactive media exhibits

BERNADETTE SCHRANDT

EXPERIENTIAL VALUE OF MUSEUMS

Over the four years 2013 to 2017, museum visits in the Netherlands increased by 30%³⁷, thereby showing that museums are meeting the condition of being accessible to a growing audience.³⁸ However, it turns out that museums with the highest number of visitors are not automatically the ones that are most highly valued, according to Kammer & Van Lent (2014).³⁹ 'Experiential' museums are rated significantly higher by an audience than, for example, traditional art museums. This suggests that focusing on the number of museum visits does not necessarily guarantee the achievement of two other museum goals: 1) to educate visitors and 2) to inspire and emotionally touch visitors.⁴⁰ In 2014, the Dutch Cultural Heritage Agency decided to strategize this 'experiential value' of museums while stating: "Our second ambition is to increase the experiential value for the visitor and thus to strengthen the museums' impact".⁴¹

THE PROMISE OF MULTIMEDIA

The agency believes that "new technologies and the usage of (interactive) media installations seem to offer unlimited opportunities to create experiences".⁴² Interactive multimedia exhibits have indeed become an important tool for museums to share cultural-historical stories with their visitors.⁴³ However, while a lot of literature exists on the opportunities offered by these new technologies, little is known how, and to what extent, interactive media experiences can positively influence the experience of museum visitors and whether it leads to, for example, a higher satisfaction rate or more knowledgeable or inspired visitors.⁴⁴ In addition, designers also wonder if the exhibits they design fulfil their planned purpose.⁴⁵

THE EXHIBITION DESIGNER OF THE 21ST CENTURY

Together with ten Dutch museums and four design agencies, the Amsterdam University of Applied Sciences led the practice-based research called The Exhibition Designer of the 21st Century (2017-2019), which was funded by Regieorgaan SIA. Researching the effect of intentionally designed museum experiences, the project focused on how four design strategies (participatory practices, storytelling techniques, atmospherics and interactive media) affected visitors' level of inspiration, the degree they were emotionally touched and to what extent they felt they had learned valuable information. In this article, the case study of one Dutch museum will be discussed to 1) address the methodology used in our project to research the effect of designers' intentions and 2) present results from our research concerning six interactive media installations used in two exhibitions at this museum. The goal of the project is to develop an instrument that will allow museums to research their own expectations when developing new exhibitions.

EXHIBITION SITE AS EXPERIENCESCAPE

In our research, we approached exhibitions as so-called ‘experiencescapes’⁴⁶, which allows researchers to examine the exhibition as a site intentionally designed by the museum to create a certain experience. It’s here that the visitor and the museum meet one another, and visitors are able to cognitively, emotionally and physiologically respond to the museum’s built environment. As this article focuses on the results of our research, we will not discuss the theoretical background but rather refer readers to Van Vliet, Schrandt & Groot (2016) and Schrandt & Van Vliet (in press).⁴⁷

CASE STUDY: DUTCH SCIENCE MUSEUM

To explain our method and outcomes in this article, we selected one museum that focuses on science communication. Two recently renewed exhibitions were chosen to examine the expectations around the museum’s ‘experiential’ goals (to transfer valuable information to visitors, as well as inspire and emotionally touch them). The first exhibition dealt with scientific discoveries of the 17th Century; the second exhibition discussed medical history. Although all four themes were addressed in the case study⁴⁸, we will only focus on the theme regarding interactive media installations. For this, six interactive installations were selected based on their role in the exhibitions. For an overview of these installations, see table 1.

METHODOLOGY

This research is divided into two phases: the development phase and the exhibition phase. Although we will not discuss in depth the results from the research performed during the development phase, it is important to note that we performed document analysis and interviews to better understand the intentions of the designers.⁴⁹ During the exhibition phase, we carried out visitor research from February to May 2018 using three different methods to capture visitors responses to the different exhibitions:

1. On-site exit survey: After visiting one of the exhibitions, visitors were asked to voluntarily fill out a 10-minute survey that measured the following items: motivation, frequency, sex, age, satisfaction⁵⁰, immersion, empathy, sympathy, involvement⁵¹, learning, inspiration and emotional response⁵². In total, 427 surveys were collected (208 for 17th Century; 219 for medical history). Variables were mostly measured on an interval and ratio scale, so the dataset would allow for an AN(C)OVA and regression analysis using SPSS.

2. Non-participatory systematic observation: Actual behaviour (routing, behaviour, duration) was measured using an observation sheet. A total of 65 observations were gathered; Excel was used to calculate frequencies, averages and walking routes.
3. Focus groups: Motivations and feelings were discussed in four two-hour focus groups (with a visit), which had four to six participants each. A total of 21 participants were recruited either via the museum’s social media channels or on-site.

RESULTS

Interactive media were included for the following main reasons:

- To make the museum visit more fun and lively.
- To encourage a learning experience, since it was expected that interactive elements would stimulate visitor curiosity, and since interactive installations were sometimes better suited for the type of content (for example, since visitors are not allowed to scroll through ancient books, digitizing these books seemed an effective solution).
- To better serve their audience. For example, it was expected that interactive installations that focused on knowledge transfer would better suit the needs of visitors with a motivation to learn more about the exhibition’s theme, and that interactive installations that were more designed for entertainment would better fit the needs of families.
- To be able to include more personal stories.
- To motivate visitors, and thereby making the visit more attractive and increase the involvement of the visitor.

From the interviews with several exhibition designers involved in this case study, it became clear that the interactive installations were seen as a tool (and not a goal) to better address specific cultural-historical content and/or to stimulate learning, inspiration and emotional connection within the environment.

LEARNING VALUABLE INFORMATION AND FEELING INSPIRED

Visitors who filled out the survey thought the interactive media installations mainly contributed to the experiential value of “having learned valuable information”, rather than that of feeling inspired or emotionally touched (both exhibitions: 23%). However, visitors to the 17th Century exhibit also thought that the interactive installations contributed 21% to the experiential value of “feeling inspired”. Participants in the focus groups confirmed that the use of multi-modal exhibits that addressed them in different ways, including interactive media installations, were appreciated and made the exhibition sites livelier.

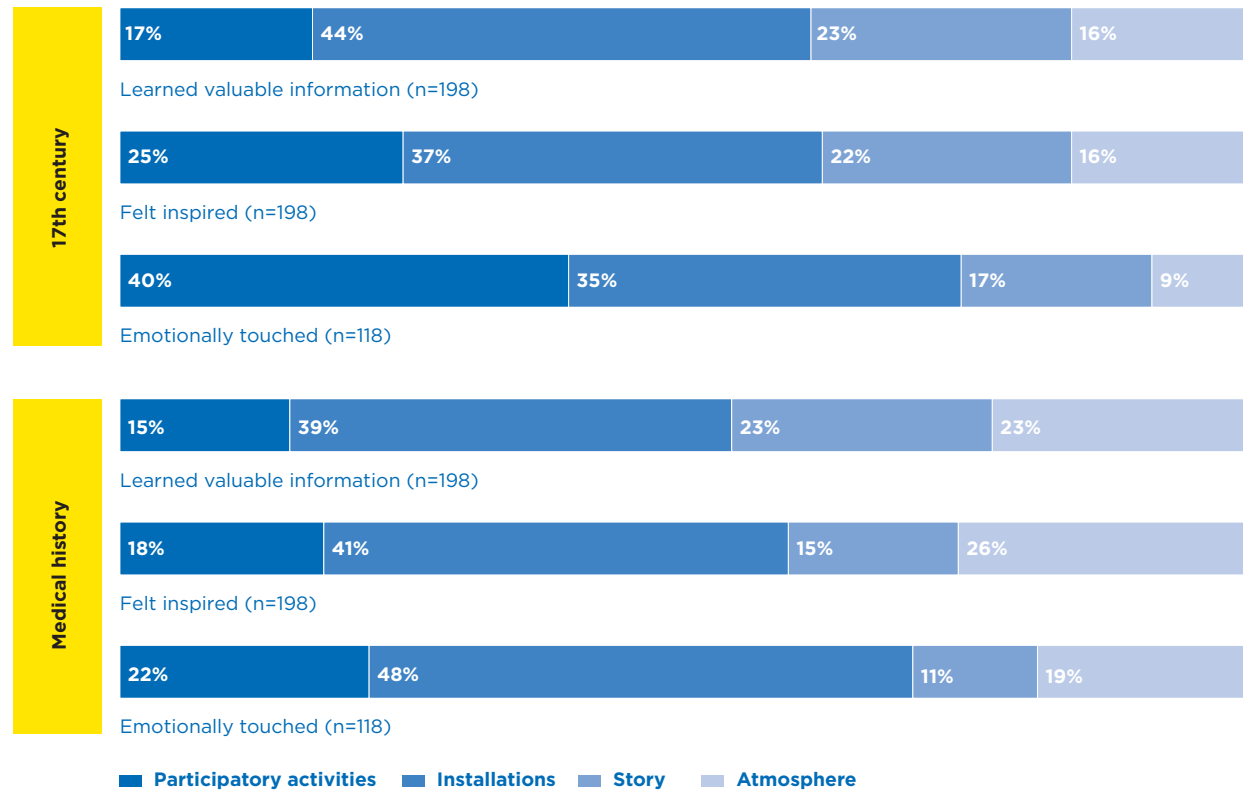


Figure 1: scores of the different design strategies on the three experiential values

USAGE

On most occasions, the interactives were used together (range 23-57%). The dataset from the survey allowed us to create three groups: visitors who 1) did not use any of the three selected interactive media (12%), 2) used one or two of the selected media (52%) and 3) used all the selected media (37%). When comparing the groups, our results showed that men used all three interactive installations more often than women in the medical history exhibition (Fisher's Exact, $p < 0,01$) and that visitors from the age group 61-75 stated more often that they had used all three interactives (#1: $F=12.855$, $df=2$, $p < 0,001$, #2: $F=13.605$, $df=2$, $p < 0,001$).

EFFECTS ON EXPERIENTIAL VALUES

The following table shows the results of the visitor research regarding the six interactive media installations that were selected for this case study (C = 17th Century; M = medical history). For these results, two groups were created: visitors who did use the installations (V) and visitors who did not use the installations (N).

Digital installation	C#1: Interactive screens	C#1: Book on herbs	C#1: Medication	M#2: Interactive screens	M#2: Bodyscan	M#2: Dilemmas
Description	Informative installation	Browsing book (Kinect)	Interactive game	Informative installation	Interactive installation (Kinect)	Reflective installation; visitors reflect upon science developments
# in exhibition	3	1	1	9	1	5
% visited (observation)	43% (range: 41-47%)	66%	69%	44% (range: 26-65%)	88%	25% (range: 15-33%)
% visited (survey)	46%	55%	55%	71%	69,5%	71,5%
N visited (V)	93	111	113	155	151	155
N not visited (N)	110	92	92	62	66	62
Learning						
I learned valuable information in this exhibition	V: $m=4,0$, $sd=0,65$ N: $m=3,8$, $sd=0,63$ $t=2,56$, $df=200$, $p < 0,05$					
The content in this exhibition is of good quality					V: $m=4,0$, $sd=0,69$ N: $m=4,2$, $sd=0,53$ $t=-2,68$, $df=215$, $p < 0,01$	
I expected to be more challenged by this exhibition					V: $m=2,6$, $sd=0,84$ N: $m=2,3$, $sd=0,84$ $t=2,23$, $df=215$, $p < 0,05$	
Inspiration						
I felt inspired by this exhibition						
I now think differently about the topic discussed in this exhibition	V: $m=3,2$, $sd=0,87$ N: $m=2,8$, $sd=0,95$ $t=3,34$, $df=200$, $p < 0,01$					
I would like to participate in other activities relating to this theme						V: $m=3,4$, $sd=0,90$ N: $m=2,9$, $sd=1,01$ $t=3,42$, $df=215$, $p < 0,01$
I will look up more information about this topic				V: $m=2,9$, $sd=0,88$ N: $m=2,5$, $sd=0,78$ $t=2,51$, $df=215$, $p < 0,05$		V: $m=2,9$, $sd=0,85$ N: $m=2,6$, $sd=0,88$ $t=2,33$, $df=215$, $p < 0,05$
Touched emotionally						
I was emotionally touched by this exhibition		V: $m=2,8$, $sd=0,83$ N: $m=2,45$, $sd=0,82$ $t=2,90$, $df=200$, $p < 0,01$				
Empathy: I could identify with the characters used in this exhibition	V: $m=3,4$, $sd=0,72$ N: $m=3,1$, $sd=0,82$ $t=2,77$, $df=201$, $p < 0,01$	V: $m=3,4$, $sd=0,75$ N: $m=2,95$, $sd=0,77$ $t=4,38$, $df=201$, $p < 0,001$				V: $m=3,3$, $sd=0,82$ N: $m=3,0$, $sd=0,87$ $t=2,78$, $df=215$, $p < 0,01$
Sympathy: I felt sympathetic for the characters used in this exhibition	V: $m=3,6$, $sd=0,57$ N: $m=3,1$, $sd=0,73$ $t=4,90$, $df=201$, $p < 0,001$	V: $m=3,6$, $sd=0,64$ N: $m=3,1$, $sd=0,67$ $t=5,30$, $df=201$, $p < 0,001$				
Immersion 1: I felt immersed in the experience	V: $m=3,5$, $sd=0,70$ N: $m=3,3$, $sd=0,81$ $t=2,31$, $df=201$, $p < 0,05$	V: $m=3,6$, $sd=0,73$ N: $m=3,2$, $sd=0,75$ $t=4,03$, $df=201$, $p < 0,001$				
Immersion 2: I felt immersed in the story		V: $m=3,45$, $sd=0,71$ N: $m=3,1$, $sd=0,74$ $t=3,45$, $df=201$, $p < 0,01$				

Table 1: comparison of the scores of respondents who visited vs not visited the interactive media exhibits

EXPERIENTIAL VALUES: LEARNING, INSPIRATION AND EMOTIONALLY TOUCHING

The results from both the survey and the focus groups show that there are no major differences in the emotions expressed and the words used to describe the interactive installations. Participants from the survey thought the digital interactives have a clear storyline and a clear goal, as well as being easy to use, fun and easy to keep the attention. The participants also felt “wonder” and “in control”.

Learning. The results show that visitors who used the interactive screens in the 17th Century exhibition had a slightly higher score on “learned valuable information” as opposed to visitors who did not. In addition, we see that visitors who used the bodyscan in the medical history exhibition stated more often that they expected a more challenging exhibition.

Inspiration. Four of the six installations showed slightly higher scores on one of the inspiration items, with the dilemmas installation being the only one that scored higher on two items (“I would like to participate in other activities” and “I will look up more information”).

Emotionally touching. Two installations from the 17th Century exhibition scored the highest on “emotionally touching” installations: the interactive screens and the book on herbs. We also saw that visitors who did use the book on herbs scored significantly higher on all the items related to an emotional response.

CONCLUSION

The primary goal of this research was to see whether the interactive screens used in these two exhibitions contributed to heightening a visitor’s sense of the exhibition being a valuable learning experience, inspirational and emotionally touching. We can see that the interactive screens, dilemmas, and the book on herbs positively contributed to a learning, inspiring and emotional experience, respectively. The bodyscan seemed to have a (small) negative effect on the visitor experience. The other two installations were appreciated, but there was no noticeable effect in our variables.

It must be noted, however, that no experiment was conducted to measure the exact effect, and that the differences between the two groups were small. Secondly, since the interactive installations were only a part of the research, these outcomes should be seen as a first indicator and therefore needs verification. Nevertheless, these results show a promising perspective in the debate on how to measure the effectiveness of multimedia installations.

The secondary research goal was to develop a better instrument to measure the visitor experience related to digital exhibitions. In this regard, it’s interesting to point out that while similar interactive screens were used in both exhibitions, visitors’ responses seemed different. Our data does not provide a clear explanation for this, but we do want to express some considerations related to

1) the environment of the exhibitions and 2) relevance. First, the medical history exhibition included more interactive screens than the 17th Century exhibition, and this could lead visitors to focus on other parts of the exhibition that are less present. Second, some participants from the focus groups felt uncomfortable with some of the topics discussed in medical history and that the lighting made the room feel like a hospital; whereas the 17th Century exhibition felt more like a discovery (although it was quite dark). Lastly, the concept of ‘relevance’ might play a role here: visitors of the 17th Century exhibition mentioned more often that the discussed topics were personally relevant for them, whereas visitors of the medical history exhibition said more often that it was relevant for society as a whole. Hence, we suggest that any further research should include these items in the experiment to learn more about their respective roles.

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