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Virtual Reality for the Case of Charity

Effects of using Virtual Reality as a marketing tool for charitable causes

Abstract:

Praised for its ability to elicit a sense of being in another world for a brief moment, Virtual Reality (VR) technology has attracted innovative minds across a great variety of industries. Seeing the world through someone else's eyes has suddenly become possible, leading to new possibilities for marketers. Specifically, charitable organizations have paid increasing attention to this medium. VR has been argued to be effective in increasing engagement, donations and enhancing general branding activities. However, VR as a marketing tool, and specifically for charitable organizations, have been sparsely researched scientifically. Hence, there is a knowledge gap that needs to be filled. This thesis sets out to explore how charitable organizations use VR today and what the effects of VR are on consumer perceptions, attitudes and behaviour. To address these questions, three separate studies were conducted. Firstly, a qualitative study was conducted to investigate the usage of VR among charitable organizations. Secondly, a controlled experiment was conducted to test the effects of VR in a controlled setting. Lastly, a field experiment was conducted to add depth to the findings and provide room for further analysis. The findings suggest that VR, as compared to traditional 2D film, has a significant and positive effect on perceived ad attitude, presence, empathy, advertising creativity, advertising effort and expense. Also, the medium seems to enhance face-to-face fundraising by increasing traction. However, contrary to the objectives that charitable organizations express themselves, no support was found for an effect on brand attitude, donation intention or donation behaviour. For charitable organizations, these results should confirm that investing in VR marketing efforts can be justified but not expected to lead to a change in behaviour or brand attitude short-term. This study paves the way for future research to explore the topic and the many potential opportunities that lies ahead.

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Glossary & Definitions

Charitable organizations: Non-profit organizations that aim to benefit the welfare of the community. In this wide definition, non-profit organizations that work for a social cause, independent of it being medical research, preservation of nature or helping children in need is thus included.

Immersive VR: VR using e.g. a Head-Mounted Display, enabling users to be completely surrounded by the virtual environment.

Non-immersive VR: VR using an ordinary desktop where the user experience is limited to what can be seen and heard from a computer screen without being completely isolated. Such as exploring a product in a 360-degree photograph on a web shop.

Presence: The sensation of being present in a place outside of one's current physical location.

Virtual Environment: The environment in the virtual world.

Virtual Reality (VR): A technologically simulated experience in which the user can experience the sensation of being in another - real or fictional - world.

User: The person who uses the VR equipment.

2D film: A 2-dimensional film, in other words a traditional film watched on a static interface. Objects in a 2D-film can be three dimensional but the interface lacks the depth of 3D.

360-degree video: Video recordings that are shot in 360 degrees at the same time using an omnidirectional camera. In playback, the viewer can see every direction like a panorama.

360 or VR? In the media, VR is usually referred to any video experience with headgear. Some, however, argue that the proper use of "VR" is only for simulated environments and not real environments shot in 360-degrees. These should instead simply be referred to as "360". In this thesis however, the videos will be referred to as "VR" given that this is how charitable organizations themselves refer to their videos. Hence, this is with reservation for any potential consensus on the topic that may arise in the future.

1. INTRODUCTION

With the technological progress of today, the line between the real world and the virtual world has become ever so vague. Technology that previously belonged to sci-fi movies is today making its way into the everyday life of consumers. This development has presented many opportunities for marketers who are keen on taking a leap of faith in the new mediums. With Virtual Reality, marketers central desire - to influence consumers - can now be accomplished in a whole new way. The technology, which previously has been used in diverse areas such as education, medicine and gaming, has now made its way into the area of marketing where it has gained extensive attention in the last couple of years. As consumers can enter a new virtual world in which they can interact, VR has been predicted to completely disrupt many areas of business (Goldman Sachs, 2016). In other words, through VR, consumers are no longer mere observers but can play a part in the action of a commercial message. This unique ability has been specifically intriguing for markers of charitable or social causes. In the last two years, several of the largest charitable organizations such as UNICEF, WWF and The Red Cross have all embarked on using VR as means for promoting their organizations. VR has been praised for its ability to elicit compassion which may further lead to potential charitable support. Some have even gone as far as calling it an “empathy-machine” (Milk, 2015). However, with the speed of technological development, marketing researchers have been struggling to keep up. Hence, using VR as a marketing tool, and specifically in the case of marketing charitable causes has been relatively unexplored. Until now.

1.1 Background

“Virtual reality was once the dream of science fiction. But the internet was also once a dream, and so were computers and smartphones. The future is coming and we have a chance to build it together”.

- Mark Zuckerberg, CEO Facebook (Zuckerberg, 2014)

The adoption of VR technologies and experiences has recently exploded in a great variety of businesses. Spanning from medical applications, to educational support and to gaming, the use of VR seems to be on the rise and transforming practices across industries (Goldman Sachs, 2016). By the year 2025, the market for Virtual and Augmented Reality is predicted to be valued at 80 billion dollars, making it one of fastest growing areas within the digital sphere

(Goldman Sachs, 2016). The use cases are diverse and include areas such as new ways of showing real estate, replacing in-store display inventory in retail and letting consumers experience live entertainment at home (Goldman Sachs, 2016). Its applications have up until recently been quite practical, for example the technology has been used within education to simulate real-life situations such as flying a plane or performing a surgery. Increasingly, however, the usage has spread to the field of marketing. What has been argued to be special about VR, in comparison to other mediums, is its unique ability to create a sense of presence or “being there” in the virtual world (Riva et al. 2007). This has led several charitable organizations to explore the medium as means of letting people experience the feeling of being in another person’s shoes. Charitable organizations have embarked on the new technology in hope of creating a new, more empathetic experience for their potential supporters (Harrisson, 2016; UNICEF, 2015). Examples include the VR experience “8 minutes on the run” by UNICEF, where one can experience being in a refugee camp by using VR headgear. However, VR has not only been used by traditional charitable organizations but for help organizations at large in areas such as cancer research, Alzheimer research and preservation of nature (Overly, 2016). Hence, one recent theme seems to be the use of VR to gain support for a social cause. Although charitable organizations are joined in their virtual marketing efforts by big brands like CocaCola, Mercedes and Tom’s, charitable organizations are arguably more sensitive to marketing spending by their very nature. They must balance the need to attract new donors such as through marketing, with their objective, and abidance by law, to direct their resources to charitable causes. Hence, there are some question marks as to whether it is worth for charitable organizations to be bold and try out new technologies before the potential effects have been verified. Also, it has been a debate within social marketing as to how charitable organizations should, or should not, incorporate commercial strategies due to their budget constraints (Ritchie, Swami, & Weinberg, 1999). From the perspective of charitable organizations, as will be described later in this study, one motivation for taking a leap of faith in the medium has been due to the assumed unique nature of VR. Motivations include a belief that people become more empathetic, feel more present and are more likely to engage when being approached with commercial messages through VR (See table 2, Study 1). Whether this is true or not has, so far, not been investigated in scientific research and hence there is a theoretical, empirical and practical gap to fill.

1.2 Problem Area

Although the spending on VR in many industries is increasing (Deloitte, 2016), there is little research on the medium's effects in commercial settings. From interviews with charitable organizations, conducted in the first study of this thesis, it was clear that the marketing objectives for using VR have largely been motivated by anecdotal evidence rather than research. Understanding VR's potential effects on consumers can help charitable organizations make more conscious and targeted choices on how to incorporate VR into their organizational strategy and add long-term value.

Given the novelty of VR for commercial use, there is also the aspect of higher costs associated with using the medium as compared to other, more traditional mediums. For charitable organizations in particular, the distribution of resources can be even more sensitive than in other sectors (Ritchie, Swami, & Weinberg, 1999). Partly, there is an ethical aspect of charitable organizations spending outside the core operations. In Sweden, the organization Swedish Fundraising Control manages the so-called "90-accounts", which indirectly controls that charitable organizations do not overspend. A rule for being granted such an account is that maximum 25% of collected money is spent on administrative costs (Svensk Insamlingskontroll, 2017). The 90-account signals quality and therefore, all serious Swedish charitable organizations strive for being granted one. As such, the lack of research is partly the problem but more so the potential wasteful investments that charitable organizations consequently risk on taking. In the extension, in the worst case, this might come at the expense of their core operations.

1.3 Purpose of the Study and Research Questions

Based on this background, the main purpose of this master thesis is to explore the effects of VR as a marketing tool for charitable organizations. This will be done by investigating the topic in three different studies. Firstly, in Study 1, the aim is to create an overview of the role VR plays for charitable organizations. By gaining knowledge and understanding of how charitable organizations work with VR today, these findings can then lay the foundation for further analysis. Secondly, in Study 2 and Study 3, VR's effects on consumer perceptions, attitudes and behaviour will be explored. In this way, a holistic view of the use of the medium and its effects can form a basis for both future research as well as hopefully, serving as strategic advice for charitable organizations. To accomplish this, the following research questions are posed:

- 1. How do charitable organizations use Virtual Reality for marketing purposes today?*
- 2. How does Virtual Reality-aided charity marketing affect consumer perceptions, attitudes, and/or behaviour?*

1.4 Intended Knowledge Contribution

The intended knowledge contribution of this thesis is mainly of empirical and practical nature. It aims to fill the knowledge gap on the use of VR as a marketing tool and specifically in the case of marketing social causes. Few academic studies have been conducted on VR and its potential for marketing. This thesis hopes to make an empirical contribution on the new and commercialized use of VR. The lack of empirical research is also mirrored in the lack of theoretical knowledge regarding VR as a marketing tool. This thesis does not aim at forming a general theory on VR but rather gather a theoretical foundation that can work as a source of inspiration for future research. Moreover, this thesis aims to make a practical knowledge contribution, namely by making charities more informed on how to best apply, or not apply, the use of VR.

1.5 Delimitations

In terms of scope, the research on using VR as a marketing tool was specifically conducted on charitable organizations. Moreover, charitable organizations have been defined based on their purpose of helping society as a whole, meaning that the legal form has not been considered. This means that the results are mainly applicable to organizations with similar purposes. The video used in the experiments to investigate the effects of VR concerned the specific social cause of helping children in need. This ought to be a quite traditional charitable cause but future research with a broader scope may want to include other charitable causes.

Also, VR can in broader terms refer to both immersive VR, such as using head-gear to enter a virtual world, or non-immersive VR, such as playing a video game on a static interface (Mills & Noyes, 1999). In this case VR was delimited to only concern immersive VR. Mainly since this form has gained a lot of interest from charitable organizations specifically. Furthermore, the studies are geographically delimited to the Swedish market, which may mean that the results are potentially more applicable to the Swedish context.

1.6 Thesis Outline

The most logical disposition to build up the content of the thesis is the following: methodology first, then Study 1, literature review, Study 2 and 3, general discussion and conclusion. To get an overview of the research conducted, general methodology for all three studies is presented. After that, Study 1 is presented. Besides addressing the first research question on the role of VR among charitable organizations, Study 1 also aims at finding directions for relevant theories. Hence, the literature review and theoretical framework is presented directly after. The theoretical framework is later explored empirically in Study 2 and Study 3. Both Study 2 and 3 address the second research question on the effects of VR on consumer perceptions, attitudes and behaviour. Each chapter of the studies contain a deeper presentation of its respective methodology, results as well as a shorter discussion. Lastly, final conclusions are made through general discussion on the findings, with managerial implications, critique and directions for future research.

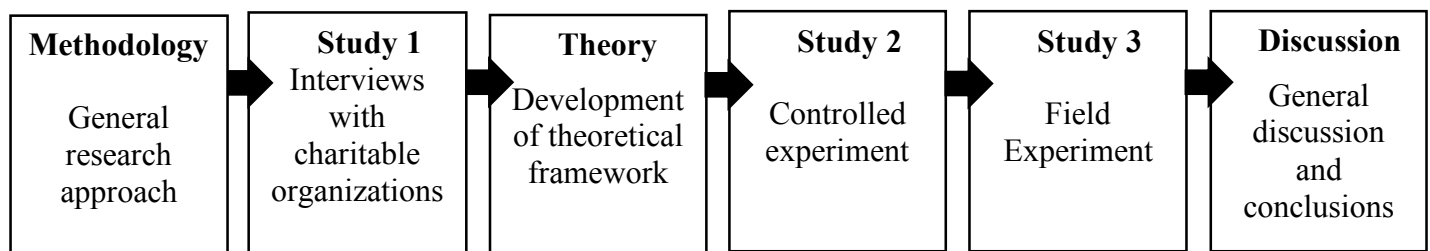


Figure 1: Disposition of the master thesis

2. METHODOLOGY

This chapter provides explanations of research methods used. First, the chapter discusses the scientific approaches used and general research design. Second, it ends with discussions on the quality of the data in terms of reliability, validity and replicability.

2.1 Scientific Approach and General Research Design

The general research design of this master thesis constitutes a mix of research methods. The research questions are addressed and investigated through firstly a qualitative study, secondly a controlled experiment and lastly a field experiment. Due to the unexplored area of VR as a marketing tool for charitable organizations, it was argued that the best scientific contribution would be to give a broad view that can later form the base for future research. By using a mix of methods, the area could thus be approached and analysed from different angles.

Study 1 aimed at addressing research question 1 “*What role does VR play for the marketing of charitable organizations today?*”. Study 1 was performed by conducting semi-structured interviews with charitable organizations, hence taking on a qualitative nature. This approach was found most suitable due to the overall explorative purpose of the study. Respondents could then elaborate on topics that may not have been known by the authors before. The qualitative first study had an inductive approach as the study aimed at probing the empirical field and thus help in guiding the theoretical framework (Bryman & Bell, 2011). Initially, Study 1 was considered a pre-study. However, due to its final more extensive nature it was included as the first of three main studies.

The results from Study 1 guided in exploring specific theories that formed the foundation for Study 2. In Study 2, hypotheses were then derived from existing research knowledge and theory, making the research approach of this study deductive (Bryman & Bell, 2011). Study 2 was conducted in the form of a controlled experiment, which is an experiment that occurs in an artificial setting (Söderlund, 2010). All hypotheses derived from theory were tested here. The purpose of Study 2 was to address the second research question: *How does Virtual Reality-aided charity marketing affect consumer perceptions, attitudes, and/or behaviour?* In practice, this was done by exposing participants of the experiment to different kinds of stimuli to be able to compare effects between groups that were exposed to VR and groups that were exposed to 2D. The collection of data was done through a self-reported survey.

A potential issue with controlled experiments is that they might not show the whole picture and as addressed in Söderlund (2010) and only give indications of the results given their artificial setting. Hence, it was deemed appropriate to complement Study 2 with a field-experiment (Study 3). The purpose of Study 3 was thus to further address the second research question but to add insights from a natural setting. If Study 2 could demonstrate intended behaviour, for example if participants reported themselves as positive to donating money, a field experiment could gather data on actual behaviour. Study 3 was designed as a field experiment with both quantitative sampling and participant observation used for data collection.

2.2 Data Quality

The data quality overall and of all three studies is discussed and evaluated here in terms of reliability, validity and replicability.

2.2.1 Reliability

Reliability concerns the quality of the measurements and refers to the extent an experiment, scale, test or measuring procedure yields consistent results on repeated trials (Malhotra, 2007). The reliability of the respective studies is evaluated on their *stability over time*, *internal reliability* and *inter-observer consistency*.

Stability over time assesses if a measure is stable and whether it may fluctuate given the timeframe and contextual conditions (Bryman & Bell, 2011). Hence, a stable measure should produce similar results for the same sample on different occasions if the contextual setting was similar. To ensure stability over time, the questions for Study 1 and questionnaire for Study 2 were both tested before to minimize risk of misunderstandings. Measures for Study 2 were all collected from established and well-cited research that had been used on similar occasions before (see Appendix 1).

Internal reliability discusses multiple-indicator measures and is used to examine if items used in a multi-item scale correlate consistently when measuring the same variable (Bryman & Bell, 2011). Using established measures that have been tested in similar settings before was one way of ensuring a high internal reliability. Some items were slightly modified in terms of exact formulation following input from the pilot-test of the questionnaire. All questions were also translated from English to Swedish as we had a Swedish speaking sample, this was done with

Careful phrasing to make sure that the Swedish version was equivalent to the English one. To further ensure adequate internal reliability, all multiple-indicator measures were tested using Cronbach's Alpha. Only Cronbach's Alphas over 0.7 were accepted (Westergaard, Noble & Walker, 1989; Malhotra, 2004) (see Appendix 1). Indexing was only applicable to Study 2.

Inter observer consistency concerns handling subjective judgement and making sure to avoid problems that may arise when two or more observers collect data (Bryman & Bell, 2011). For example, activities such as recoding the data and the transition of data in the statistical analysis might be sources of human error. In the qualitative Study 1, one person oversaw recording and transcribing the interviews while the other person led the interview. In this way, the interview leader could focus on the interviewee while the other person could focus on noting the details. For Study 2, the data was collected through Qualtrics and later transferred directly from Qualtrics to SPSS, minimizing the risk of human error. For Study 3, a prepared spreadsheet was brought and answers were directly noted on an iPad with pre-decided categories. Hence, the reliability concerning inter observer consistency is judged to be high.

Overall, the possible measures to ensure high reliability in the studies have been undertaken and general reliability can thus be considered sufficient.

2.2.2 Validity

Validity discusses whether the conclusions drawn are reasonable and can be accepted to be true. The validity of the study is evaluated on three dimensions, namely *measurement validity*, *internal validity* and *external validity*.

Measurement validity is concerned with whether a measure captures the concept it is intended to capture (Saunders et al. 2009). To make sure that the measurement validity of this study was high, all measures used came from established, well-cited research (see Appendix 1). However, empathy has been more sparsely researched in a marketing context, therefore there was a smaller base of research to choose from and the most relevant measures were chosen.

Internal validity explains if observed effects on responses are caused by the independent variables rather than external factors (Bryman & Bell, 2011). Hence, Study 2 was carried out in a controlled setting, where each respondent was given the same information. The procedure of the experiment, was also practiced beforehand to make sure it was identical for all respondents. Lastly, a randomization app was used to decide in which experiment group a respondent would end up in, making sure that no bias affected the different groups. For the

Field Experiment, it was more difficult to hedge against external factors and hence, the internal validity for Study 3 is moderate.

External validity concerns whether the findings are generalizable to the larger population (Saunders et al., 2009). The generalizability for Study 1 is deemed to be high and the picture of how VR is used for charitable organization in Sweden is judged to be representative. For Study 2, having a sample consisting of students limits generalizability of the results to this type of or similar types of population. However, complementing Study 2 with an experiment in a natural setting (Study 3) increases the external validity of the findings in this thesis in general.

Overall, the validity of the results is judged to be sufficient or high. The potential effects on results of any weakness in data quality are further elaborated in section 9. Critique of the Study.

2.2.3 Replicability

Replicability concerns the possibility to replicate the studies to validate or disprove the original findings (Bryman & Bell, 2011). To be able to replicate the studies, procedures in all experiments were carefully documented and should be reported well enough in each study's methodology section to be replicated by future researchers. Further, interview questions, measures and scales are all reported in the thesis and can be copied. They were also taken from established research and most of them were already tested for reliability, validity and replicability. As such, the studies should be able to be replicated in the future.

The fact that the study comprises both interviews with charitable organizations in Sweden, a controlled experiment as well as a field experiment should establish an overall satisfactory level of both reliability, validity and replicability.

3. STUDY 1: EXPLORING VR USAGE IN CHARITABLE ORGANIZATIONS

This chapter presents the first study that was conducted, namely a qualitative study aimed at probing the empirical field. The chapter starts by introducing the purpose of the study. It continues with presenting the method such as design, participants and data collection. Then it moves on to the results before ending with a brief discussion on the findings.

The increased focus on VR among charitable organizations has so far mainly been documented in the popular press¹. Hence, there is a value in establishing if this supposed increased usage is true empirically. The purpose of Study 1 is therefore twofold. Firstly, to address the first research question on how charitable organizations in Sweden work with VR today. Secondly, to let findings from the study guide choice of practically relevant theories.

3.1 Method

3.1.1 Research design

The research approach for Study 1 is of inductive nature. The aim with the inductive approach has been to, in line with Bryman & Bell (2011), generate theory by gathering knowledge and understanding from the research process. The rationale has been to explore the empirical field with the aim to find answers to the first research question. For an inductive and exploratory approach, a qualitative study, based on semi-structured interviews with representatives from charitable organizations, was deemed suitable. The reason for this, was that such interviews would allow for a suitable balance of structure and openness to explore the topics that seemed interesting and important. Interviewing representatives from charitable organizations increases the chances of getting relevant insights based on their knowledge and competence in the field.

3.1.2 Participants

To find relevant participants for this study, the initial phase consisted of exploring articles in Swedish media on VR and charitable organizations. From this information, it was concluded that a few of the larger charitable organizations in Sweden had embarked on this new way of advertising. After noting organizations that had used VR, the attention was turned to charitable

¹ For examples see: Anna O'Hare, 2015; Marty Swant, 2016; Michelle Greenwald, 2016; Vive Team, 2017). Also, it has had increased attention in both Swedish press and international press during the last couple of years (see Appendix 2 & 3).

organizations in general, including those who had not used VR. Such organizations were deemed interesting to include in the sample as they could potentially answer why they had not chosen to include VR in their marketing efforts. Out of approximately 400 charitable organizations in Sweden (Svensk Insamlingskontroll, 2017), only a decade was found to have used VR. However, the ones that had used it was some of the largest and most prominent organizations in Sweden. Finally, twenty organizations were chosen to be contacted by email. Around half were organizations that had used VR and half were organizations that had not. The rationale for choosing these twenty was due to them being quite well-established. The sample size was chosen when the study still was intended to be a pre-study and in that context, 20 organizations was judged to be a suitable amount. The particular employees that were approached were people working with marketing, communications or film production as these were more likely to have an input on usage of VR.

3.1.3 Data Collection

Interviews were held both in person or via telephone. All interviews were recorded through a telephone or computer to allow for transliteration. Later, all interviews were transcribed and the material was collected in one document for later analysis. The participants were introduced to the purpose of the study before moving on to the interview. The questions were mostly open ended questions regarding their previous experience with using VR, the objectives for using VR, the expected effects and the results from these experiences. For the organizations that had not yet explored VR, similar questions were posed but focusing more on why they had not used it so far. For a complete list of questions, see Appendix 4.

3.2 Data Analysis

Notes were taken during the interviews, as recommended by Ahrne & Svensson (2011) to ensure a safe method of registration. Secondly, the transliteration was conducted by the authors themselves to avoid potential errors and problems with interpretation (Ahrne & Svensson). When transcribing interviews there may be a risk that information stemming from non-verbal communication is lost (Graneheim & Lundman, 2004). This is mainly applicable in telephone and email interviews. In this case, this was not judged to be an issue, as the aim was to get practical information and focusing on what was said rather than how it was said. All interviews were done in the presence of both authors, yet the transliteration was divided for the sake of efficiency. To prevent subjectivity, the author who had not transcribed one interview, double checked the transliteration of the other person. After the interviews were held, they were

processed in line with Grounded Theory² in the sense that they were systematically divided into categories and other observations. In this way, general patterns could be found and structured in a comprehensive way.

3.3 Results

3.3.1 Sample characteristics

Finally, out of twenty contacted organizations, ten interviews were held; seven with people from charitable organizations who had used VR in their marketing and three with people from charitable organization who had not used VR. The rest of the organizations either stated that they did not have the time or simply did not respond at all. The sample of charitable organizations, which have used VR almost represents the full population of such organizations in Sweden and thus gives a good picture of how charitable organizations in Sweden use VR today. Table 1 below shows the total sample of interviewed organizations.

Charitable Organizations which have used VR (Interview channel)	Charitable Organizations which have not used VR (Interview channel)
WaterAid (<i>telephone</i>)	Pratham Sweden (<i>in person</i>)
SOS Barnbyar (<i>in person</i>)	Blodcentralen Stockholm (<i>in person</i>)
Röda Korset (<i>telephone</i>)	Naturskyddsföreningen (<i>telephone</i>)
SIDA (<i>telephone</i>)	
Plan Sverige (<i>in person</i>)	
Göteborgs stadsmission (<i>telephone</i>)	
Diakonia (<i>telephone</i>)	

Table 1: Interviewed organizations in Study I

3.3.2 Findings

Overall, there were several topics that reoccurred throughout the interviews. All these sum up to give an overall picture of the role VR plays for Swedish charitable organizations today. The findings are organized in four main areas: contextual setting, objectives, expected and actual effects of VR and challenges. Below, the main findings of the study are summarized and then these findings are developed further in text.

² Grounded Theory is a model for qualitative analysis. It is used to systematically gather and process qualitative data to generate theory. (Glaser & Strauss, 1967)

Contextual setting	Objectives	Expected/Actual effects	Challenges
Events	Branding	<i>Expected effects:</i>	Difficult to measure effects
Face-to-face fundraising	Raising donations	Emotional reactions	Scalability
Outdoor activities	Increasing general engagement	Evoked empathy and presence	Technological issues
Company presentations	Create understanding and emotional connection	Liking of brand	Costs
Classrooms		Reaching objectives	Not a part of people's daily lives
	Educational purposes	<i>Actual effects:</i>	
	Signalling creativity and innovation	Emotional reactions and empathic concern	
		Understanding of the issue	
		“Wow-factor”	

Table 2: Summary of findings

3.3.3 Contextual setting

For the organizations that had used VR, the specific ways in which the medium was used to communicate varied. VR had been used to shine light on diverse topics such as poverty, children in need, environmental disasters, the refugee crisis and homelessness among other things. This indicates a quite diverse area of usage for the medium. For example, SIDA and Diakonia had both used the film “Clouds over Sidra”, originally produced for the United Nations, showing what life is like for a young refugee girl on the run. Göteborgs Stadsmission, on the other hand, enabled viewers to walk in the shoes of a homeless person. In this case, they added so-called haptics such as wind and coldness, to make the situation feel more real. Looking at the settings in which VR had been used, the most common contexts were various events, face-to-face fundraising, outdoor activities or company presentations. Also, VR had been used for educational purposes, e.g. in classrooms.

3.3.4 Objectives

The main objectives of using VR differed between the interviewed organizations. One objective that was quite frequently mentioned was branding in general. “The primary purpose

was branding, in other words to strengthen the brand long-term. People get moved, and if they are moved they might decide to engage”. (Interview 1, Röda Korset, 16 Februari 2017). Also, part of the branding could involve being seen as more innovative or creative given the novelty of VR as a marketing tool. *“It is becoming more and more crucial to look innovative. We want to attract a younger audience and donors, and they react positively to modern mediums and it creates credibility. In a way it shows ‘they know what they are doing’ and it provides information in an attractive way”* (Interview 6, Diakonia, 16 Mars 2017). Furthermore, increasing donations through engagement was an objective that was mentioned. *“The goal of the Christmas campaign was for example to bring in more donations and get people engaged”* (Interview 9, Göteborgs Stadsmission, 13 March 2017). Lastly, organizations that had used VR all reported observing positive reactions to both the medium and the film.

3.3.5 Expected and observed effects

Other findings of interest concerned the expected and observed effects of using VR. Regarding the expected effects, most interviewees expected strong emotional reactions and a deeper understanding of the issue shown. Particularly, the emotional reactions were expected to come from the fact that one can put oneself in another person’s shoes for a brief moment. *“VR tricks the brain into believing that ‘you are there’ and that comes with many emotions such as fear and worry. You cannot counter it by simply turning away.”* (Interview 9, Göteborgs Stadsmission, 13 March 2017). Also, creating empathic feelings was a common theme. *“It creates understanding and brings out empathy. And most of all closeness to the issues”* (Interview 3, SIDA, 28 February 2017). Concerning the actual effects, many of the interviewees also stated that target groups exposed to VR showed strong emotional reactions. Either people themselves expressed being moved or people had physical reactions such as bursting into tears. Also, the medium seems to have general traction *“We were able to reach new target groups that otherwise are difficult to attract. A buzz was created and gave us a lot of extra attention from simply using the medium”* (Interview 10, Plan Sverige, 3 March 2017). Despite the notion that certain expectations of reactions were met, some companies were not certain if these effects made them reach their objectives and what value they had for the organization in the long run. Furthermore, none of the companies had managed to systematically document, quantify and follow up on the actual effects. Still, most companies seemed overall positive to VR; *“VR is here to stay, it’s a great tool to spread knowledge”* (Interview 10, Plan Sverige, 3 March 2017).

Another topic that was brought about during the interviews was the potential issue of costs. Given the recent commercialization of VR, it is usually more expensive to produce video for VR than a traditional video (Interview 13, SOS Barnbyar, 16 February 2017). This is not only a question of budget but an ethical issue as charitable organizations can be expected to invest their money only where necessary outside of the core business (Interview 10, Plan Sverige, 3 March 2017). For some organizations, they had managed to negotiate price to a lower level but for others, costs were a potential hinder in the exploration of VR.

3.3.6 Challenges with VR

The challenges that the interviewed companies mentioned were difficulties in measuring VR's actual effects and connecting these to results. Ingrid Eelde Koivisto (Interview 5, Pratham Sverige, 1 March 2017) mentioned that *“a reason for not investing in VR and why Pratham Sweden does not yet consider using it, is because there is no quantifiable proof of that it works and for what it works. It is too much of risk to try a technology if it has no proven results.”*. In Interview 2 (Blodcentralen Stockholm, 1 March 2017), it was stated that an interest of using VR exists, yet so far they have not had the time to understand enough about VR. *“Technology advances rapidly and the organization is slim and financed by taxes. That means that we have to make hard priorities regarding choice of communication tools.”* Hence, for organizations which cannot or do not want to take a leap of faith, using VR might not make sense. Again, strengthening the assumption that the field needs scientific exploration.

3.4 Discussion

The purpose of Study 1 was to get an overview on the role that VR plays for the marketing of charitable organizations in Sweden. VR is a new phenomenon in this context and hence, few organizations have used VR so far; yet attitudes towards VR were positive in most organizations. Indeed, the attention depicted in the popular press seems to hold true empirically. The medium is used as a complement to other marketing efforts and the outlook seems to be that this will hold for the near future, too. The main purpose of using VR seems to have been to connect emotionally with potential supporters by evoking empathy, create awareness of an issue, increase engagement or donations, signalling innovation or creativity and building the brand in general. Hence, a diverse area of sought objectives that have not yet been proved realistic or not. Tapping into the issue of attracting new supporters versus balancing spending, costs seems to play a role as well. Also, if potential supporters have the

impression that VR is costly, one can wonder if this may affect the impression of the charitable organization.

The second purpose of Study 1 was using the findings to get guidance in choosing practically relevant theory. Repeated patterns in answers regarding the expected effects were found and they were related to brand attitudes, donations, emotional effects and other signalling effects such as being perceived as creative. Using this foundation, theories of interest could hence be explored further.

4. THEORY AND HYPOTHESIS GENERATION

This chapter covers the theoretical framework used as a foundation to form hypotheses for Study 2. First, background and theory on Virtual Reality and presence is explored. Secondly, literature on Social Marketing and the connection between VR, presence and empathy is presented. Then, literature on signalling effects of advertising effort, expense and creativity is explored. Lastly, it ends with a summary of the hypotheses derived from the theories.

Due to the recent rise of VR as a marketing tool, the theoretical foundation available as of today is quite limited. To investigate the prevalence of scientific articles on VR, marketing and charitable organizations, searches were initially conducted in the databases Scopus, EBSCO, ABI, JStor and Sage Publications. The combination of the keywords “virtual reality” and “marketing/advertising” resulted in 88 hits in the business & management section results on Scopus. However, most of these were non-cited and mostly also concerned gaming. Not a single article was found on VR together with keywords such as “charity”, “charitable organization” or “non-profit”. Given this limited foundation of the specific area of focus in this master thesis, it was deemed most appropriate to investigate the separate literature on VR and marketing of charitable organizations. Study 1 was used as a guide for theories of relevance. This constituted of a mix of theories on Virtual Reality and presence, social marketing as well as marketing signalling effects. Figure 2 illustrates the theoretical fields that were approached and areas in which they are overlapping.

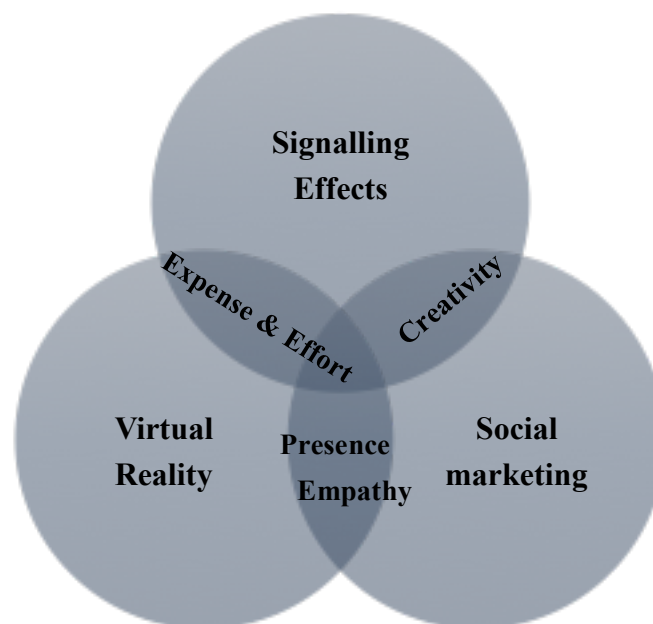


Figure 2: Theoretical framework

4.1 Virtual Reality

Virtual Reality is a technologically simulated experience in which the user can experience the sensation of being in another - real or fictional- world.

Since its birth, VR has had a wide number of usage areas. Spanning from medical applications, to educational support and to gaming, the use of VR seems to be on the rise and revolutionizing practices across industries (Deloitte, 2016). Currently, a considerable share of academic research on VR concerns the medium in a medical context and its use in, for example, medical rehabilitation (Keshner, 2004). Another large part of research concerns the application of VR in a gaming context and how virtual gaming may affect players psychologically (Ahn, Le & Bailenson, 2013). At the centre of the research is the quest to find a link between behaviour in the virtual world and behaviour in the real world. Ahn, Le & Bailenson (2013), for example, found that playing prosocial video games in a virtual environment could encourage prosocial behaviour in the real world.

Although VR per se is not a new phenomenon, the commercialization of immersive VR is quite recent. Hence, research on immersive VR as well as VR as a vehicle for commercial messages is sparse. One of the few studies that have investigated VR in a commercial setting is Suh & Lee (2005). They conducted an experiment in which they found that VR, compared to a static interface, increases the levels of product attitude, product knowledge and purchase intentions among consumers. Suh & Lee (2005) further states that the high media richness and high interactivity are the key characteristics of VR that distinguishes it from other mediums. Media richness refers to the degree to which a mediated environment can appeal to different senses. Steuer (1992) defines two facets of media richness: sensory breadth and sensory depth. Breadth concerns the ability to present information to different senses - a television would have greater sensory breadth than a radio for example. Depth, on the other hand, rather concerns the information quality such as image resolution. The key is that messages that appeal to several perceptual systems at the same time are better perceived than messages that only appeal to one sensory system, which should give VR an advantage over other mediums (Li et al., 2002).

Furthermore, a key feature of VR has been that its high media richness and high interactivity generate the feeling of presence (Suh & Lee, 2005). This phenomenon of presence, has been argued to be an important link between VR and its potential effect on consumers. For example, Li et al. (2002) found that advertising in 3D led to better product knowledge and more positive

brand attitude than advertising in 2D. In their study from 2013, the results show that 3D advertising enhances the feeling of presence which in turn mediates the effect on product knowledge, brand attitude and purchase intention. Hopkins, Raymond & Mitra (2004) had similar findings and further concluded that presence had a positive effect on ad attitude. Hence, presence seems to have a key role in enhancing the value proposition for products and brands.

4.1.1 Presence

Simply put, “presence” refers to the feeling of “being there” or “being in a world that exists outside the self” (Riva et al. 2007). In the last decades, the attention has been brought to the feeling of presence and how it is central in many forms of mediating experiences (Biocca, 1997; Lombard & Ditton, 1997). The feeling of being present has been investigated in, among other things, reading novels (Gerrig, 1993), playing video games (Tamborini, 2000), watching television (Lombard et al., 2000) and using VR simulators (Heeter, 2000). “Telepresence”, “Virtual Presence”, “Mediated Presence” or just “Presence” are sometimes used interchangeably as scholars from different fields have used their own expression. However, Lee (2004) concludes that it would be better if scholars united under the general term “presence”. In this broader term, Lee refers to a collection of definitions that each holds central the feeling of being in an environment other than one’s immediate physical environment (Steuer, 1992). A central part of the presence phenomenon is the perceptual reaction to the actual technology. In other words, that users experience a virtual world where both technology and external physical environment disappears from the user’s phenomenal awareness (Lombard & Ditton, 1997). The definition of presence chosen for this thesis is thus:

“The sensation of being present in a place outside of one’s current physical location.”

Slater & Wilbur (1997) further separates “presence” from “immersion” where immersion is an objective, such the field of view in the medium or the display resolution. The level of immersion is hence dependent on the technical abilities of the VR gear. Presence, on the other hand, refers to the subjective phenomenon and the individual sensation felt in experiencing the virtual environment. In this thesis, the technological perspective of immersion will be taken to fully distinguish it from the presence. The relation between immersion and presence is that a higher level of immersion enables a higher level of perceived presence (Bailenson & Cummings, 2016). Several scholars have attempted to find elements that would affect the level of perceived presence. For example, the realism of the virtual environment is believed to affect the level of perceived presence positively (Lombard & Ditton, 1997). The level of presence

has also been argued to depend on the level of involvement the user feels when interacting with a medium (Witmer & Singer, 1998). For example, a narrative congruent with the video showed has been found to affect the level of perceived presence positively (Gorini et al., 2011). A higher level of perceived presence is assumed to magnify user effects and the degree to which the user responds to the events in the virtual environment. Magnified user effects also translate into higher effectiveness of the mediated environment as the user processes the stimuli better (Nunez & Blake, 2001).

The understanding that the goal of virtual environments should be to elicit feelings of presence has pervaded both academic work and applied practices (Bailenson & Cummings, 2016). Due to its high media richness, the ability to create a sense of presence is believed to be uniquely strong in VR compared to other static mediums (Riva et al. 2007). Applying these previous findings to the case of a VR-based films for charitable organizations leads to the first hypothesis:

H1: Watching a promotional film on a charitable issue in VR elicits stronger feelings of presence than watching the film in 2D

4.1.2 Presence and the emotional connection

Another interesting area to investigate, given the results from the Study 1, is presence and its connection to emotions. A crucial implication of the phenomenon presence is its ability to create cognitive and emotional responses among VR users. Previously, it has been shown how movies and imagery techniques can be used to elicit certain emotions. For example, Mauss et al. (2005) have shown that 2D movies can elicit moderately intense emotional, behavioural and psychological responses coherent with the context of the movie. VR is special in the sense that it has an even stronger ability to create the feeling of presence experienced by the user (Riva et al. 2007). Riva et al. (2007) analyses the potential use of VR as an affective medium specifically through looking at the relationship between emotions and presence. In their study, it is demonstrated that participants exposed to anxious or relaxing virtual environments experienced feelings of anxiety and relaxation respectively after VR exposure. The relationship was also found to be circular: the feeling of presence was larger in “emotional” environments but the emotional state was also affected by the level of perceived presence. The ability of VR to produce lasting effects on an emotional level has also been apparent through its use as an alternative form of cognitive behavioural therapy called virtual reality exposure therapy (VRET) (Krijn et al., 2004). For example, VR simulations have been used to successfully aid

patients with spider phobia, fear of flying and public speaking anxiety (Carlin et al., 1997; Rothbaum et al. 2000; Wallach et al., 2009). Given VR's ability to elicit responses similar to that of the real world, one should expect communication messages to be processed even more strongly in a virtual environment. Appealing to emotional aspects has been a central focus in social marketing, mainly to encourage helping behaviour among potential charitable supporters. This is where the theoretical fields of VR, presence and social marketing are intertwined. Hence, before additional hypotheses can be derived, a literature review on social marketing and helping behaviour is presented.

4.2 Social Marketing and Helping Behaviour

There exists a large body of research on marketing for non-profit organizations in general, partly covered in the area of so-called "social marketing". Several scholars conclude that it is crucial even for non-profit organization's survival to develop effective marketing strategies to survive (Kotler P. 1979; Hibbert & Horn 1996; Sargeat 1999). Tapp (1996) found that charitable organizations that pursue activities such as creating a unique brand identity and selecting the right brand position tend to be more effective in communicating organizational values to stakeholders. Also, marketing efforts in charitable organizations have been proven important in changing public opinion (Lindsay and Murphy 1996), building donor trust (Tonkiss and Passey 1999), achieving objectives (Hankinson 2002) and attracting a higher proportion of voluntary income (Hankinson, 2001). A common theme in research on social marketing has been how various marketing strategies can encourage prosocial behaviour (Bagozzi & Moore, 1994). Prosocial behaviour and helping behaviour are central concepts that help explaining charitable behaviour on a psychological and social level. Prosocial behaviour refers to voluntary behaviour which aims to benefit another person or society as a whole. Prosocial behaviour can be that one obeys rules or conforms to social norm, but can also refer to helping people in need. *Helping behaviour* is a type of prosocial behaviour and it is a voluntary chosen action which aims to help others. Giving money or other items to a charitable organization can hence be classified as a type of helping behaviour. The motivations for engaging in helping behaviour can be many, ranging from being purely altruistic to simply egoistic (Decety, 2011). Also, the reason for helping can be believed moral obligation (Cheung & Chan, 2000), personality traits and personal values (Bennett, 2003). A central theme in research on social marketing has been how various emotional appeals can be used to elicit helping behaviour. Specifically, the role of evoking empathy has been investigated (Basil et al., 2008). This area is of particular interest as there are indications that VR is suitable for

emotional appeals as well as anecdotal evidence that VR is a so-called “empathy machine” (Milk, 2015). VR has just recently been used in charitable organizations marketing strategies, and therefore, no academic literature exists on VR and social marketing specifically. However, there seem to be an interesting link between the potential empathetic effects of VR and its relevance for marketing of social causes.

4.2.1 Helping Behaviour, Empathy and VR

The general definition of empathy is the ability to understand or sense what another person is experiencing from within that person’s frame of reference. Simply, it involves the cognitive ability to take the perspective of another person (Batson et al. 1988). The sociologist Daniel Goleman suggest three types of empathy: cognitive empathy, which refers to understanding how another person is feeling and might think; emotional empathy, which is physically feeling with another person, as if their emotions are your own and compassionate empathy, which concerns understanding and feeling with another person, and if needed being moved to help. Compassionate empathy or empathetic concern has been associated with prosocial behaviour and argued an important driver for altruism (Batson 2009). For charity organizations, all types of empathy are important, yet to encourage action such as donations, *compassionate empathy* ought to be the type of empathy that one would like to evoke.

Several scholars have found that empathy plays a central role in eliciting helping behaviour (Decety, 2011; Batson, 1998). For instance, Santrock (2007) states that “the circumstance most likely to evoke altruism are empathy for an individual in need, or a close relationship between the benefactor and the recipient.”. The advances in today’s technology, e.g. in the VR environments, make it possible for people to see the point-of-view of another person in a first-person perspective (Gerry, 2017). Seeing a situation as if the point-of-view were yours, would allow you to both literally and potentially emotionally see the world with different eyes (Gerry, 2017). Hence, via this logic, one can see that VR’s technology should set a good foundation to enable people to feel more empathic. There are a couple of researchers, who have conducted research on VR and empathy, yet the supply is limited. Research has shown that being in a virtual environment may impact social interactions and awareness, for example through effects on implicit racial bias (Groom, Bailenson, & Clifford, 2009), social perspective taking (Gehlbach et al., 2015), and helping behaviour towards persons with disabilities (Ahn, Le, & Bailenson, 2015). In Ahn, Le & Bailensons study from 2015, it was evident that VR technology

facilitated perspective taking and lead to greater self-other merging, attitude change and overall helping behaviour.

Concluding, VR has a technology, that enables people to change perspective, which should enable the person to experience the situation more as if it was his/her own experience, i.e. what (simply put) defines empathy. The difference between other mediums is that VR enables the subject a first-person perspective experience of a to him/her normally unknown situation. This is also supported by previous research on presence that suggests that users do feel that they are in a different place and immersed in the setting. Hence, it can be argued that VR ought to evoke higher levels of empathic concern than seeing the same film in 2D. This leads to the second hypothesis:

H2: Watching a promotional film on a charitable issue in VR elicits stronger feelings of empathy than watching the film in 2D

As empathy has been argued to elicit altruism and helping behaviour, it is natural to pose the question if higher feelings of empathy lead to increased probability of supporting a charitable cause – for example by donating money. Previously, empathy has been shown to affect donation behaviour specifically (Basil et al., 2008). This is, however not uncontested. While some argue that empathic concern does enable altruism and helping behaviour (Batson, 2009), others such as Decety (2011) states that “empathy is not automatic or reflexive and many factors affect its induction and expression.”. Decety (2011) means that one cannot expect that people who feel empathy will automatically act on it. Empathy is a very complex phenomenon and its relation to emotion and helping behaviour may be affected by for example social aspects, motivational contingencies or the specific context (Decety, 2011). Also, the ability and motivation to engage in perspective taking may be different from individual to individual (Davis & Kraus, 1997). However, contested the actual effects of empathy on helping behaviour may be, indications from previous research, indications from Study 1 as well as recent reports from charities on increased donations (Harrison, 2016; UNICEF, 2015), suggests that people may be more prone to donate money after seeing a promotional film in VR. Hence, the third hypothesis is:

H3: Watching a promotional film on a charitable issue in VR leads to higher donation intentions than watching the film in 2D

4.3 Signalling effects: effort, expense and creativity

Another theoretical area that is of interest after what came forward in Study 1, is the potential signalling effects of VR. Due to the early stage of VR in a commercial setting, it is relevant to investigate potential effects on perceived advertising creativity, effort and expense.

As the production of VR film is relatively new and complex as opposed to traditional 2D film, the current costs associated with producing VR material is still higher than for traditional advertising such as in 2D (Interview 3, SIDA, 28 February 2017). Hence, it is logical to look at potential differences in *perceived effort and expense* in the use of VR film as compared to 2D film. Perceived advertising expense and effort has previously been shown to affect perceived product quality (Kirmani, 1990), brand credibility (Ambler & Hollier, 2004), brand interest, brand attitude and word-of-mouth positively (Modig, Dahlén & Colliander, 2015). The logic draws on the “Handicap Principle” in biology, namely that animals use certain wasteful characteristics to signal their biological fitness. Hence, a high advertising expense - even if it might be wasteful in the sense that it does not contribute to delivering the message - may signal a certain level of brand fitness (Ambler & Hollier, 2004). Expense can in other words be regarded as brand effort, and if a brand exerts effort in a campaign one can expect that the brand is confident in the product or service that it offers. Thus, “waste” in advertising, that does not add anything to the functionality of the ad might enhance the perceptions of the brand and therefore be worth it. Kirmani (1990) tested this idea using different sizes of the same print advertisement, Ambler & Hollier (2004) compared different production qualities between commercials and Colliander, Dahlén & Modig (2015) looked at print and TV advertisements that had been awarded on creativity and efficiency. This concept has so far not been investigated in advertising aided by interactive technology nor, to the authors knowledge, for non-profit organizations. Research has shown that today’s consumers are capable enough to form estimations of the expense and effort that has been put into an advertisement as well as estimating if the expense and effort was bigger than usual (Ambler & Hollier, 2004; Dahlén, Rosengren & Törn, 2008). Given this, one can expect that consumers may assume that VR technology is more expensive than traditional mediums for advertising. Thus, their perception of the brand may be affected by the signals the brand sends by using VR in the first place. Hence, the following hypotheses were developed:

H4a: Watching a promotional film on a charitable issue in VR leads to higher perceived advertising effort compared to watching the film in 2D

H4b: Watching a promotional film on a charitable issue in VR leads to higher perceived advertising expense compared to watching the film in 2D

Another potential signalling effect that was an apparent objective in Study 1 was being perceived as creative or innovative. It has previously been suggested that creative advertising positively affect advertising effectiveness (Nyilasy and Reid, 2009). Research on advertising creativity have both concerned the creative execution as well as creative choice of medium (Dahlén, Friberg & Nilsson, 2009). In the case of VR and charities, it is not necessarily the story of the film that is creative but rather the choice of medium. Hence, using VR technology may in itself be considered creative or innovative. Therefore, this variable was also deemed appropriate to test. The hypothesis investigating the potential creative signalling effects of VR is thus formulated as following:

H4c: Watching a promotional film on a charitable issue in VR leads to higher perceived advertising creativity compared to watching the film in 2D

Overall, the indications from the review of signalling effects all point to implications for brand and ad attitude, through higher perceived effort, expense, creativity. Potentially, the higher perceived presence may also be an indicator of higher brand attitude (Li et al. 2002) and ad attitude (Hopkins, Raymond & Mitra, 2004). General brand attitude and ad attitude was also something that was apparent objectives among the organizations interviewed in Study 1. Hence, the last hypotheses concern the potential effects from using VR on brand attitude and ad attitude. In this case, ad attitude concerns the attitude towards to VR film. The hypotheses were formulated as follows:

H5a: Watching a promotional film on a charitable issue in VR leads to more positive ad attitude than watching the film in 2D

H5b: Watching a promotional film on a charitable issue in VR leads to more positive brand attitude than watching the film in 2D

4.4 Summary of theoretical framework

Derived from the theoretical framework illustrated in figure 2 and from the findings in Study 1, figure 3 illustrates the variables chosen to test and/or explore. As the second research question addresses the effect on consumer perceptions, attitudes and behaviour, each variable has been categorized accordingly. “Perceptions” refers how one perceived the film in terms of felt presence and empathy as well as perceived advertising creativity, expense and effort. “Attitudes” refers to brand and ad attitude. “Behaviour” refers to donation behaviour, both intended (self-reported) and actual.

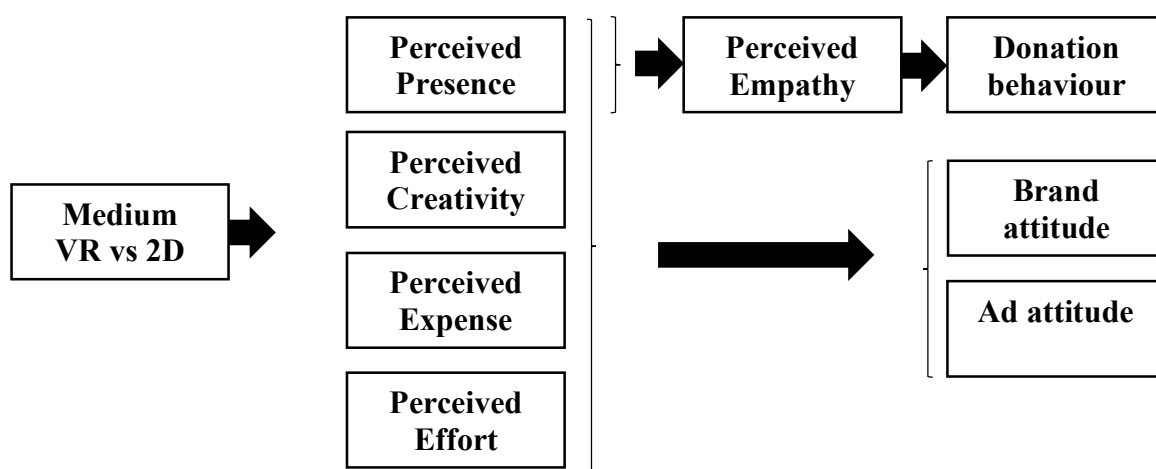


Figure 3: Illustration of variables derived from theory

5. STUDY 2: INVESTIGATING VR EFFECTS IN A CONTROLLED EXPERIMENT

The chapter covers the second study of the master thesis. It starts with a short introduction of the purpose of the study and how it addresses the research question two. After that, methods used, including research design, are presented following with a presentation of results. Lastly, the chapter ends with a discussion on the results and how they address the research questions.

The accounts of the effects of VR have so far mainly been anecdotal, therefore there is a need to investigate the effects in a scientific setting. Hence, to address research question number two and the effects of using VR as a marketing tool, a controlled experiment was conducted aimed at investigating what effects VR has on consumer perceptions, attitudes and behaviour. All hypothesis derived from the theory section are tested in this study.

5.1 Method

5.1.1 Scientific approach and research design

Study 2 has been approached deductively, which in contrast to an inductive approach, has its starting-point in theory and previous literature, from which hypotheses are derived. The results from the study later support or reject the hypotheses and through that shape research (Bryman & Bell, 2011). From Study 1, a body of research was collected that enabled the creation of a theoretical framework. As the purpose was to investigate the collected data from this theoretical perspective, a deductive approach for Study 2 was deemed suitable.

The experiment consisted of watching a film and answering a survey. Hence, Study 2 had a quantitative experimental design, partly to collect enough data to increase generalizability but also to complement the lack of quantitative research on VR in marketing. To do this, an online questionnaire was created in the program *Qualtrics Survey Software* (see Appendix 5). The questions were mostly closed, and mainly consisted of statements that the respondents responded to on a seven-point Likert scale, aligned with recommendations from Lange et al. (2003). The questionnaire was structured into 12 blocks with 28 questions in total. Before seeing the film, questions related to demographics, attitude to VR, attitude to charity and attitude and willingness to donate to SOS Barnbyar was covered. Following this were eight blocks responding to each hypothesis on creativity, effort, expense, presence, empathy, ad attitude, brand attitude and donation intention. Before launching the questionnaire, a survey pilot test was made to ensure that the questions used in the main study were comprehensible

and that the scales and measures used were clear (Saunders, Lewis & Thornhill, 2009). Also, feedback was given from associate Professor Patric Andersson, Phd. Student Gustav Almqvist and Head of Face-to-Face at SOS Barnbyar, Erik Hamberg.

To measure the effects of VR it was necessary to have something to compare VR to. Hence, a comparison between VR and 2D film was deemed appropriate since 2D is the natural and traditional alternative to VR. Besides comparing the effect between VR and 2D using charity stimuli, it was argued important to see if there potentially were any effect from the medium itself, independent of stimuli type. Hence, two control groups were included that were exposed to either VR or 2D but with non-charity-related stimuli. In this way, any general VR-effect could be captured. Consequently, there would be four alternative films to watch 1.) a VR film from a charitable organization 2.) exactly same film but in 2D, 3.) a VR film with a neutral setting and 4.) the exact same film but in 2D. To ensure a random selection and avoid bias, the respondents were randomly assigned a group with help of the mobile app Random UX.

5.1.2 Participants

Regarding the choice of respondents, a convenience sampling process was utilized in order to get sufficient respondents (Bryman & Bell, 2011). Convenience sampling has vulnerabilities such as selection bias or sampling errors, which may affect the generalizability of the study³. The setting chosen was the Stockholm School of Economics (SSE) as well as The Royal Institute of Technology (KTH). The experiment was conducted on the 30th and 31st of March at SSE as well as on the 3rd and 4th of April at KTH. Approximately half of the sample was found at each school.

5.1.3 Equipment & Material

A high quality of the VR equipment as well as the choice of stimuli was essential to be able to draw any valid conclusions on the effects. To find suitable stimuli for all four groups, aspects regarding film technology and quality of the film needed to be considered. To be able to make comparisons, the same film shown in VR needed to be shown in 2D. However, 360 films are shot differently than 2D films as the angles differ and partially the content. When watching a 360 film without VR glasses it may look a bit skewed. Hence, only films, which had good enough quality and look professional enough in 2D could be chosen.

³ Implications related to this discussed in 2. Methodology and 9. Critique of the Study

Concerning the choice of film for groups 1 and 2, the alternatives were narrow. The aim was to find a film that would portrait people in need of help, yet, the issue showed was not supposed to give rise to strong political opinions or other things that might distract the viewer. For example, films on the refugee crises were deemed potentially politically charged. Hence, the selection was narrowed down additionally. The film that seemed most appropriate, well-produced and also made a good film in 2D was a VR film from the Swedish charitable organization SOS Barnbyar called “SOS Barnbyar in Rustenburg”. The film is 2:01 minutes long and illustrates life for children in a so-called SOS child village in Rustenburg, South Africa. To get permission to use SOS Barnbyar’s film, a collaboration with SOS Barnbyar was established. A meeting with Erik Hamberg, Head of Face-to-Face communication, was set up on the 16 March 2017 where it was agreed that the authors could borrow SOS Barnbyar’s VR-equipment as well as use their VR film. The VR gear provided by SOS Barnbyar were two pairs of Samsung’s Gear VR (SM-R323), two Samsung Galaxy S6 model number SM-G920F and two pairs of Pioneer stereo headphones, model SE-MJ751. The gear was deemed to be of sufficient quality as it has received good ratings on various evaluations online⁴. Since the purpose of control groups 3 and 4 was to control for any potential effects from the medium itself independent of message, a film that portrayed a neutral setting was chosen. The rationale behind this was that less attention is given to the message and more of the medium’s effect is caught. A couple of alternatives were found, which filled the criterions. The final film chosen was a VR film, which portrays parts of Buenos Aires. The film was 1:49 minutes long.

Before the study was conducted, both films and VR gear were tested. The two films were shown to twelve people (four in each experiment group). The people who watched the film in 2D did not know that the film was a VR film originally, and were asked questions about the quality of the film. No one remarked on any peculiarities and hence, the authors considered the films appropriate. Also, no remarks were made on the quality of the VR-equipment and therefore, the conclusion was made that it was sufficient.

5.2 Procedure

First, the respondents were approached at the respective university. Söderlund (2010) states that to ensure the best results, it is essential that the respondents are unaware of what the experiment concerns. Thus, all respondents were given instructions, which did not reveal the scientific purpose. Also, the same questionnaire was given out to all respondents, regardless if

⁴ Overall Quality Rating: 4/6 (Gotschalk, 2016)

the respondents saw the film from SOS Barnbyar or if they saw the film of Buenos Aires. This resulted in that some questions could be slightly weird if not applicable to the film seen. This was dealt with by including the alternative “Not applicable”. Finally, all the respondents were given similar instructions and information. The complete experimental procedure were as follows:

1. *Background information:* Participants were given information on the experiment and the overall procedure.
2. *First part of Survey:* Participants started by filling in the first part of the survey on demographics and control questions for attitude towards charities in general, VR and SOS Barnbyar. When done, they were assigned a number randomly that decided which experimental group they belonged to.
3. *Film:* Participants were exposed to the film. Those in the VR-groups were given extra instructions on use of the gear. For those who watched the film in 2D, they were shown the film on a computer.
4. *Complete Survey:* Following exposure of the film, the participants filled in the rest of the survey relating to their experience.

5.3 Data Analysis

To process and analyse the data, the statistical analysis software IBM SPSS Statistics was used. The data was transferred directly from Qualtrics, in which it was collected, to minimize the risk of human errors. Before statistical tests were applied, two initial steps of data processing carried out: (i) data checks for quality, comparability and distribution of the data and (ii) computing variables to enable further analysis.

5.3.1 Data checks

The transferred data was processed by excluding invalid data points, analysing for outliers and thirdly by conducting normality checks. First, the original sample of 164 respondents was reduced to 161⁵. Thereby, all four groups contained more than necessary respondents to make reliable statistical tests (Newbold, Carlson & Thorne, 2012). The entire question of monthly

⁵ The low number of invalid answers was due to the experimental design where each respondent was thoroughly informed about the requirements in the experiment. Excluded responses included respondents that had left out parts of the survey or simply replied with the same number on each of the questions.

income was deemed to give inappropriate answers, since it despite pre-test had been unclearly formulated. Hence, the results from that data were neglected. Secondly, for certain tests used in Study 2, such as ANOVAs and MANCOVAs, to be valid, the assumption that the data is normally distributed must hold. Hence, normality checks were performed on all variables by using Shapiro-Wilks test. Not all variables showed that they were normally distributed. However, the sample size of each group satisfied the central limit theorem, where the sum of the variables may follow a normal distribution even if the initial variables themselves are not normally distributed. Hence, MANCOVAs and ANOVAs were still deemed appropriate for analysis as F-tests tend to be robust towards non-normal data. At least if the non-normality is caused by skewness instead of outliers (French et al., 2002). Lastly, outliers were tested for but did not affect the results significantly. For summary of normality checks see Appendix 6.

5.3.2 Computing variables

Then, variables were computed and for most of the variables indexes were created. Multiple items were combined into one variable through the calculation of the mean scores for respondents. Compiling multiple item measures through the sum of means is a common method for statistical tests (Pedhazur & Schmelkin, 1991). For each index, a Cronbach's Alpha was calculated and the index was deemed acceptable for Cronbach Alphas above 0.70. A Cronbach Alpha above 0.70 indicated a strong enough correlation between the sum of the item scores (Malhotra, 2004). Further, variables with reverse-scored items were recoded to ensure correct indexes. A few comments on choices regarding the variables are worth mentioning. Regarding presence, a well-established scale, formed by Slater, Usoh and Steel (1994), that has been extensively used previously to measure spatial presence was chosen. The specific scale had also been used in experiments with HMD's, making it suitable for Study 2. Moreover, regarding scales on effort and expense, attempts were made to find more extensive ones with more items. Finally, a scale was chosen with one item which has been used in research by Kirmani (1990) and later used in research by Ambler & Hollier (2004) as well as Dahlén, Rosengren & Törn (2008). Concerning donation intentions, a one item scale was chosen, but to complement donation intention, all respondents were also offered to donate on the spot at the end of the survey. More thorough information about the used variables can be found in Appendix 1. Only items, which in the end were transformed to indexes are presented there.

5.4 Results

The results from Study 2 are presented in three major parts: descriptive information on the survey respondents, hypotheses testing and other results.

5.4.1 *Descriptive information on sample*

First and foremost, general findings on gender distribution, occupation, income and age will be presented. The gender distribution on the total sample was even, 50% males and 50% females. Furthermore, the average age of the respondents was 24 years old ($SD = 2$, $Min = 19$, $Max = 32$). The average income of respondents was not possible to get directly from the data. Yet, the results from the sample's occupation give indications on possible average income of the sample. Since the majority (94%) reported that they were students, it was concluded that the sample in general probably had similar financial conditions, with a minimum income of the amount that the Swedish state provide as a student loan, which is approximately 10.000 SEK.

Other important information on the sample regarded attitude to VR, attitudes to charitable organizations, brand attitude before stimuli, donation intention and donation frequency before stimuli. Firstly, of all respondents, 97% had heard of VR before and 61%, had used VR with a HMD before. The total sample's attitude to VR was found by computing an index. Mean attitude to VR was 6.81, hence an overall very positive attitude to VR. The total samples' mean attitude towards charitable organizations amounted to 5.31 ($SD = 1.01$, $Min = 2$, $Max = 7$) which is in line with the attitude of the average Swede (Välgörenhetsbarometern, 2016). Mean brand attitude before stimuli of the total sample amounted to 5.33 ($SD = 1.06$, $Min = 2$, $Max = 7$). Hence, both the total sample's average attitude to charitable organizations and brand attitude to SOS Barnbyar can be considered fairly positive. Regarding the total sample's frequency of donation, 21% reported that they donate money at least once a month, and the rest reported that they donate less than once a month (16% donate at least every quarter year, 27% donate at least once a year and 22% donate less than every year). To put this into perspective, around 50% of Swedes reported on having donated money in the last couple of months according to Välgörenhetsbarometern (2016).

5.4.2 *Hypotheses testing*

Testing the hypotheses was done in two parts. Firstly, the mediums effect on ad attitude, brand attitude and donation intention was tested. These were tested together as they needed to have

covariates included for control. Secondly, the effect on the variables concerning consumer perceptions, i.e. presence, empathy, advertising creativity, effort and expense were tested.

5.4.2.1 Effects on ad attitude, brand attitude and donation intention

The first three hypotheses tested were the hypothesis concerning the effect of VR advertising on the variables ad attitude (H5a), brand attitude (H5b) and donation intention (H3). The hypotheses derived from theory were the following:

H3: Watching a promotional film on a charitable issue in VR leads to higher donation intentions than watching the film in 2D

H5a: Watching a promotional film on a charitable issue in VR leads to more positive ad attitude than watching the film in 2D

H5b: Watching a promotional film on a charitable issue in VR leads to more positive brand attitude than watching the film in 2D

These hypotheses were tested in two steps. Firstly, by conducting a MANCOVA test to establish if there were differences in means between the independent groups and to control for covariates. Secondly, by conducting a post-hoc analysis using Fisher's Least Significant Difference (LSD). This was done to understand exactly between which groups the significant differences lie and through that see whether the hypotheses could be supported or rejected. MANOVAs are used to see if there are any significant differences in the means between the independent variables. By doing a MANCOVA, the dependent variables can be adjusted for differences in several covariates, hence, reducing risk of errors (French et al., 2002). This was deemed important in order to assert that the results would be valid even after controlling for potential effects of these variables.⁶ The dependant variables included in the MANCOVA were ad attitude, brand attitude and donation intention and the independent one was the type of stimuli (four groups). The covariates included were gender, attitude towards charities, attitude towards VR, donation frequency, donation intention before stimuli and attitude towards SOS Barnbyar before stimuli⁷. The results from the MANCOVA are presented in Table 3 below. The overall model showed significant differences between all four conditions Wilks' $\lambda = .758$, $F(9, 326) = 4.3$, $p < 0.001$.

⁶ The test is suitable for experimental situations where some of the independent variables are manipulated, and it has been argued to protect against Type I errors that may occur when only conducting separate ANOVA's (French et al., 2002).

⁷ Matrix scatter plots including the dependent variables and the covariates were observed to check for correlation. When the co-variables then were deemed appropriate to include, the MANCOVA test was done.

	VR Charity		2D Charity		VR Neutral		2D Neutral			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	P-value
Ad Attitude	5.50	0.79	4.79	0.90	5.09	1.27	4.12	1.23	10.24	0.000***
Brand attitude	5.58	1.04	5.42	0.88	5.04	1.45	5.02	1.26	2.10	0.020**
Donation Intention	4.93	1.62	5.21	1.32	5.15	1.81	5.16	1.91	1.02	0.480

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 3: MANCOVA: Means for ad attitude, brand attitude & donation intention across all four conditions

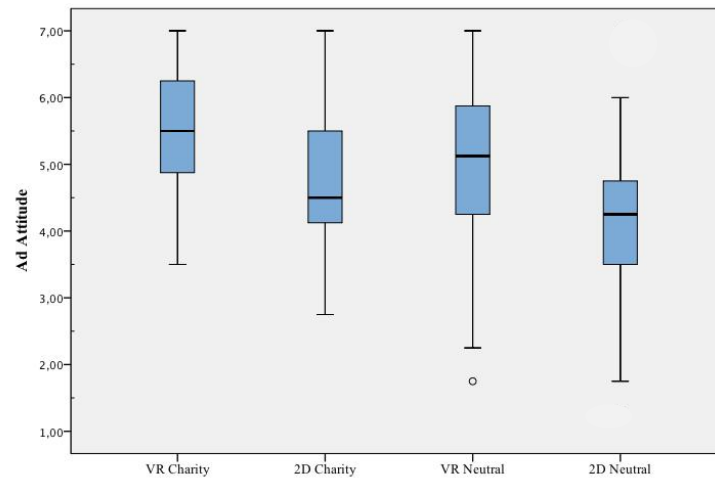


Figure 4: Box plot on the variable ad attitude comparing the four experimental groups

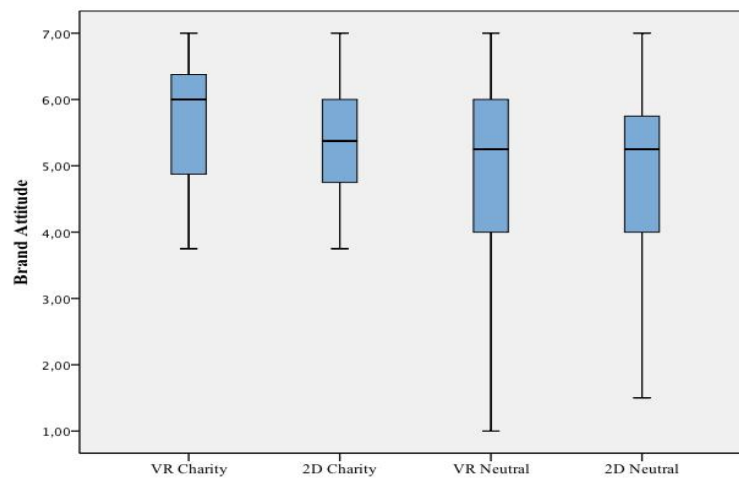


Figure 5: Box plot on the variable brand attitude comparing the four experimental groups

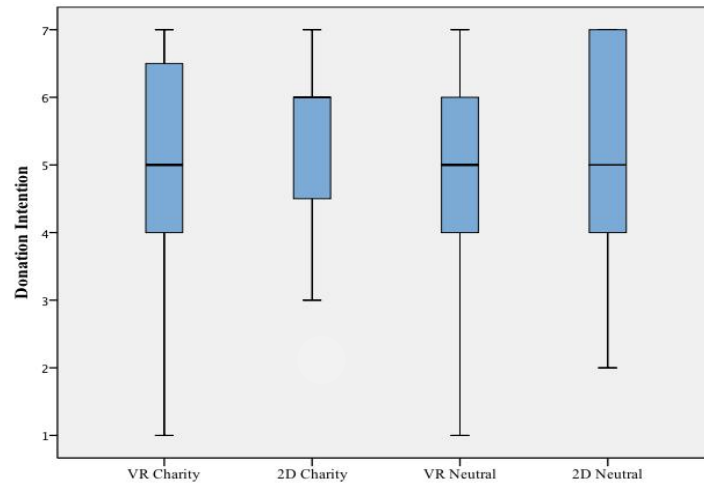


Figure 6: Box plot on donation intention comparing the four experimental groups

The results from the MANCOVA show that there are significant differences of means between all four independent groups for the variables ad attitude and brand attitude. In terms of donation intention, however, no significant difference was found between any of the groups on group level, $F(3,134) = 1.02$, $p > 0.05$. As such, hypothesis 3 was not supported, indicating that VR as a medium did not have any particular effect on the intention to donate money to SOS Barnbyar. Hence, there was no need to include the variable donation intention in the post hoc test. Furthermore, the results from the MANCOVA concerning covariates showed that none of them had a significant effect on the dependent variable ad attitude, yet significant effects could be found on the dependent variables brand attitude and donation intention. Effecting brand attitude significantly were the covariates brand attitude before, attitude towards charities in general and attitude towards VR, where both brand attitude before and attitude towards charities in general had the strongest effect⁸. Looking at donation intention, the covariates that showed a significant effect on this dependent variable were brand attitude before, attitude towards charities in general and donation intention before⁹. Discussion on these affects are further elaborated in the discussion section in this chapter. To ultimately be able to support or reject the hypotheses 5a and 5b, it is necessary to know exactly between which groups the significant differences lie. Therefore, a post hoc test using Fisher's Least Significant Difference

⁸ Brand attitude & covariate effect: brand attitude before exposure, $F(1,134) = 29.25$, $p < 0.001$, $\eta^2 = 0.179$, attitude towards charities in general, $F(1,134) = 7.08$, $p < 0.009$, $\eta^2 = 0.050$ and attitude towards VR, $F(1,134) = 4.45$, $p < 0.037$, $\eta^2 = 0.032$

⁹ Donation intentions & covariate effect: Brand attitude before, $F(1, 134) = 4.12$, $p < 0.044$, $\eta^2 = 0.030$, attitude towards charities in general $F(1,134) = 6.23$, $p < 0.014$, $\eta^2 = 0.044$ and donation intention before stimuli $F(1,134) = 44.28$, $p < 0.001$, $\eta^2 = 0.248$.

(LSD) was performed and a pairwise comparison was analysed on these two variables. Below, groups 1 and 2's results are presented in Table 4 and groups 3 and 4's in Table 5.

	Group 1: VR Charity	Group 2: 2D Charity	Mean Difference	F	P-Value
Ad Attitude	5.50 (0.78)	4.79 (0.90)	0.71	10.24	0.008**
Brand Attitude	5.58 (1.04)	5.42 (0.88)	0.31	2.10	0.144

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 4: Pairwise Comparison between Group 1 & Group 2 with post hoc test

	Group 3: VR Neutral	Group 4: 2D Neutral	Mean Difference	F	P-Value
Ad Attitude	5.09 (1.27)	4.12 (1.23)	0.97	10.24	0.000***
Brand Attitude	5.04 (1.45)	5.02 (1.26)	0.31	2.10	0.469

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 5: Pairwise Comparison between Group 3 & Group 4 with post hoc test

Hypothesis 5a and 5b states that watching a film on a charitable issue in VR should lead to both a higher ad attitude and a higher brand attitude. Looking at Table 4, the pairwise comparison between group 1 and group 2 specifically indicated that there was a significant difference in ad attitude between the two groups, $F(3,134) = 10.24$, $p < 0.05$. The group exposed to VR had a more positive ad attitude ($M = 5.50$, $SD = 0.79$) than the group exposed to 2D ($M = 4.79$, $SD = 0.90$). Hence, hypothesis 5a is accepted at a 5% significance level. Also, looking at Table 5 there seemed to be a general VR effect as attitude towards the film was significantly higher in group 3 ($M = 5.09$, $SD = 1.27$) than group 4 ($M = 4.12$ (1.32) as well.

Despite having found significant difference between groups in the MANCOVA for the dependent variable brand attitude after stimuli exposure, no significant difference between group 1 and group 2 specifically was found when doing a pairwise comparison and post hoc test, $F(3,134) = 2.1$, $p > 0.05$ (Table 4). The only significant difference found when analysing the results further was between group 1 and 3. Hence, hypothesis 5b was not supported. Based on this analysis, hypothesis 3 and 5b are rejected and 5a is supported. Results are further discussed in section 5.7.

5.4.2.2 VR and the effect on perceptions

To further address research question number two, on the potential other consumer effects that VR might have, further analysis was conducted. The rest of the hypotheses tested were the hypotheses that concerned consumer perceptions - namely the effect of VR advertising on perceived presence, empathy, creativity, advertising effort and advertising expense. The hypotheses derived from theory were the following:

H1: Watching a promotional film on a charitable issue in VR elicits stronger feelings of presence than watching the film in 2D

H2: Watching a promotional film on a charitable issue in VR elicits stronger feelings of empathy than watching the film in 2D

H4a: Watching a promotional film on a charitable issue in VR leads to higher perceived advertising effort compared to watching the film in 2D

H4b: Watching a promotional film on a charitable issue in VR leads to higher perceived advertising expense compared to watching the film in 2D

H4c: Watching a promotional film on a charitable issue in VR leads to higher perceived advertising creativity compared to watching the film in 2D

The hypotheses were tested by conducting separate one-way ANOVAS across groups looking at each variable. For all variables but empathy, it was judged necessary to compare differences across all four independent groups to see if there was a general effect independent of stimuli. For empathy, a comparison of group 3 and 4 in particular was not applicable as these groups were unable to answer the survey question on empathy. Below, the results for groups 1 and 2 are presented in Table 6 and group 3 and 4's results in Table 7. For box plots, see Appendix 7.

	Group 1: VR Charity	Group 2: 2D Charity	Mean Difference	F	P-Value
Presence	5.05 (1.34)	2.87 (1.36)	2.18	46.35	0.000***
Empathy	5.34 (0.85)	4.36 (4.36)	0.97	33.75	0.001***
Effort	5.30 (1.24)	4.63 (1.19)	0.67	14.35	0.031**
Expense	4.38 (1.23)	4.03 (0.92)	0.35	17.02	0.238
Creativity	4.93 (1.43)	3.39 (1.50)	1.54	9.68	0.000***

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 6: One-way ANOVAs: Pairwise comparison between Group 1 & Group 2 with post-hoc analysis

	Group 3: VR Neutral	Group 4: 2D Neutral	Mean Difference	F	P-Value
Presence	5.35 (1.20)	2.65 (1.37)	2.70	46.35	0.000***
Empathy	n.a.	n.a.	n.a.	n.a.	n.a.
Effort	4.33 (1.59)	3.33 (1.47)	1.00	14.35	0.001***
Expense	3.90 (1.64)	2.44 (1.37)	1.46	17.02	0.000***
Creativity	4.82 (1.50)	4.69 (1.40)	0.13	9.68	0.681

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$

Table 7: One-way ANOVAS: Pairwise Comparison between Group 3 & Group 4 with post-hoc analysis

By analysing the groups pairwise and using the post-hoc test Fisher's Least Significant Difference (LSD), the hypotheses could be tested on each of the variables. For the variable *presence*, the post-hoc test that showed a statistically significant difference between group 1 and group 2, $F(3,157) = 46.35$, $p < 0.001$. In particular, the results showed a quite large difference of perceived presence in group 1 ($M = 5.05$, $SD = 1.34$) and group 2 ($M = 2.87$, $SD = 1.36$). As suggested by hypothesis 1, the perceived presence was higher for the group that had been watching a charity film in VR than the group that had watched a film in 2D, thus providing empirical support for hypothesis H1. Based on this, hypothesis H1 was accepted on a 1% level of significance showing that advertising in VR elicits stronger feelings of presence than advertising in 2D. When checking for a general effect of VR, it was evident that the effect was found between the control groups 3 and 4 as well, $F(3,157) = 46.35$, $p < 0.001$. This indicates that VR has a general effect of higher perceived presence, independent of the type of film.

The results for the variable empathy show a significant difference between group 1 ($M = 5.34$, $SD = 0.85$) and 2 ($M = 4.36$, $SD = 1.09$) and hence hypothesis 2 was accepted at a 1% significant level, $F(3,122) = 33.75$, $p < 0.001$. In other words, seeing a charity film in VR leads to higher perceived empathy than seeing a charity film in 2D.

Turning to the variable on perceived advertising effort, the results showed a significant difference between group 1 ($M = 5.30$, $SD = 1.24$) and group 2 ($M = 4.63$, $SD = 1.19$) in perceived advertising effort and hypothesis H4a was thus accepted at 5% significance level, $F(3, 157) = 14.35$, $p < 0.05$. Indicating that the group exposed to VR stimuli perceived that

more effort had been put into the production of the film than the group that was exposed to 2D stimuli. Furthermore, the effect was also significant when comparing the control groups, indicating again that VR might in general be perceived as something that signals effort. Regarding the variable advertising expense, however, no significant difference between group 1 ($M = 4.38$, $SD = 1.23$) and group 2 ($M = 4.03$, $SD = 0.92$) could be found, $F(3, 157) = 17.02$, $p > 0.05$. Hence, hypothesis H4b was not supported. In other words, the expected higher perceived advertising expense in the VR group was not found. However, when comparing group 3 and 4, that had been exposed to the neutral stimuli, a significant difference was found, $F(3, 157) = 17.02$, $p < 0.001$.

Lastly, from the analysis of the variable creativity, it was clear that there was a significant difference between the groups and that hypothesis H4c, indicating that a charity film in VR should be considered more creative than a film in 2D, was supported at a 1% significance level, $F(3, 157) = 9.68$, $p < 0.001$. Looking at the mean values for each group one can also conclude that the 2D film was considered slightly uncreative ($M = 3.39$, $SD = 1.43$) whereas the VR film was considered more creative than average ($M = 4.93$, $SD = 1.50$). The creativity effect was not apparent in the two control groups, which might be explained by the fact that the type of film they were exposed to was deviating from what one could expect from SOS Barnbyar. Simply, it might not have made any sense to call the film creative.

5.5 Discussion

Study 2 aimed at addressing the second research question regarding the effects of VR on consumer perceptions, attitudes and behaviour. The investigated hypotheses firstly concerned the potential positive effect on ad attitude, brand attitude and donation behaviour, in other words the outcome in attitude and behaviour. Secondly, the hypotheses regarding perceptions of the VR experience were investigated on the variables perceived presence, empathy, advertising effort, expense and creativity.

In terms of effects on ad attitude (H5a) and brand attitude (H5b), the results supported an enhanced effect on attitude towards the ad but no support was found for an effect on attitude towards SOS Barnbyar. Hence, the support of H5a is in line with previous research on the potential effect of high media richness on ad attitude (Hopkins, Raymond & Mitra, 2004). In terms of enhanced brand attitude, the results are not coherent with previous research. Li et al., (2002) who demonstrated the link between presence, high media richness and enhanced

attitude studied another type of brand which might imply that the effect on brand attitude may differ depending on the type of organization. In the analysis of covariates, attitude towards charities in general and previous brand attitude were shown to have large and significant effects on the brand attitude after stimuli. In other words, previously held beliefs on charitable organizations may be difficult to change from a one-time experience. No effect could be found on donation intention either, despite the fact that the effect on empathy was significant in the VR-group. This may not be a surprising result as likeliness that empathic concern leads to action has been contested (Batson, 2009; Decety, 2012). In other words, and in contrary to what some of the charitable organizations in Study 1 believed, VR did not seem to affect donation behaviour. Again, in the covariate analysis, donation behaviour was mostly affected by donation intention before stimuli, indicating again that the film did not have a significant effect to change this intention.

Turning to the more perceptual experience of the film, the results supported an enhanced effect on perceived presence (H1), empathy (H2), advertising effort (H4a) and creativity (H4c). However, no support was found for an effect on perceived advertising expense (H4b). In terms of presence, the results were not only statistically significant but presented a quite large difference between groups ($M_{\text{Group1}} = 5.05$, $M_{\text{Group2}} = 2.87$). The effect was also apparent in when comparing the control groups. The confirmation of hypothesis H1 may not be very surprising as research thus far has concluded similar results (Suh & Lee, 2005). However, the potential increased empathic feelings following VR experiences have thus far not been extensively researched. Hence, this result may indicate that the objective of creating an emotional connection (Study 1) may be sought through the use of VR. Although, the empathy-effect did not seem to translate into action, further research may want to investigate the effect of increased empathy in a more long-term perspective.

Lastly, advertising effort and creativity were both perceived higher for the VR case. Between group 1 and group 2, VR was regarded as significantly more creative, something that the organizations in Study 1 described as an expected effect. No effect could be found on perceived expense between group 1 and group 2. Between group 3 and 4, VR was perceived as more expensive, leading to a rejection of the hypothesis but with inconclusive results. However, the results of these three variables in particular should be regarded with carefulness in terms of their durability. Even though one might consider VR to be creative and requiring more effort as of today, this might change long-term when the medium is more established and common.

6. STUDY 3: VR IN THE FIELD

This chapter covers the third and last study of this master thesis; the field experiment. It starts by presenting the purpose of the study, moves on to describe methods used including scientific approach and research design, followed by presenting the execution of the study and ending with discussing the findings.

The purpose of the last and third study was to complement the findings in Study 2 and see what had bearing in a natural environment. Specifically, the intended behaviour regarding donations in Study 2 were deemed to be important to investigate in a real-life setting. Hence, if Study 2 presented intended behaviour, Study 3 could aid in observing actual behaviour. Furthermore, the purpose of Study 3 was also to see, if there were other effects that could not be seen in the controlled experiment.

6.1 Method

6.1.1 Scientific approach and research design

Study 3 follows a mixture of quantitative design and participant observation¹⁰, set up as a field experiment, to investigate the effects of VR in a real-life setting. The aim was to quantitatively measure actual donations as well as to observe any other potential effects that could not be observed in a controlled setting. Hence, this type of mixed research design was motivated. In practical terms, the experiment consisted of the authors acting as actual representatives for SOS Barnbyar doing face-to-face fundraising in the city of Stockholm. With the permission from SOS Barnbyar, the authors were educated about their organization and equipped with promotional materials to be able to promote SOS Barnbyar in a real campaign setting, doing face-to-face fundraising. In this way, there was a possibility to test VR as a charity marketing tool authentically. In order to compare the effects of using VR versus 2D, the experiment was split into two days; one day using each promotional medium respectively. To minimize disturbance to the authenticity of the setting, a small set of chosen questions, rather than the full-length questionnaire used in Study 2, was deemed suitable.

¹⁰Participant observation has been argued to provide a holistic understanding of a phenomenon as well as increasing the validity of the study (DeWalt & DeWalt, 2002).

6.1.2 Participants

The participants in this study were chosen on the basis that they should be equivalent to people who are approached by SOS Barnbyar in their everyday operations. In other words, the potential sample was fairly broad and included anyone that passed the site on the day of the experiment. Everyone that went by the stand were approached. Due to the nature of this experiment, information on participants such as age and gender were guessed and only reported in approximate terms.

6.1.3 Equipment & Materials

To perform the experiment, specific equipment and materials were needed. Additional to the VR equipment already borrowed for Study 2, SOS Barnbyar provided two branded jumpers, a banner with their logo and forms on which people could sign up for becoming a monthly supporter. In addition, two iPads were used; one on which the 2D film was shown was and another on which the answers of the questions could be collected.

6.2 Procedure

6.2.1 Preparatory work

As for Study 2, SOS Barnbyar's film deemed to be the most suitable VR-film for Study 3¹¹. Another meeting with them was set up on the 10th of April 2017 on which practicalities and ideas for the experiment were discussed and the authors were educated equivalent to education given to actual face-to-face representatives. It is important to underline that both authors went into this experiment with the intention of not only collecting data, but also to accurately represent SOS Barnbyar. Hence, both authors made sure to continue to study the organization carefully after the educational sessions at their office. During the two days that the experiment was held, the approach was to temporarily work for SOS Barnbyar and potential supporters were approached in a way that any face-to-face representative would have done.

6.2.2 Selection of the setting

As the purpose of Study 3 was to test people's reactions in a natural environment, a setting representative of that had to be chosen. A couple possible options in Stockholm, such as parks, malls and universities were discussed and evaluated. Due to availability and budget constraints, Kungsträdgården was finally selected and also approved of by SOS Barnbyar. Being situated

¹¹ Based on the same reasoning as in part 5.3.3 paragraph 4.

in central Stockholm and being a natural point of passage for many people, Kungsträdgården was also judged to be an optimal choice for the Field Experiment. To be permitted to stand in Kungsträdgården and conduct the experiment, permission needed to be granted by Kungsträdgården. Permission was granted by Sofia Håål, an employee at Kulturförvaltningen and Evenemangsplatsenheten. Furthermore, she made sure that there was a table and two chairs available as well as staff that helped in providing that materials on arrival.

6.2.3 The Field Experiment

The authors set up a stand with the table and equipment at the chosen location, acting as representatives for SOS Barnbyar. To keep the experiment authentic, the by-passers were not informed that this was an experiment. They were instead approached and treated as if the authors were working for SOS Barnbyar. People were approached and depending on the day, offered to see either a VR or 2D film of “SOS Barnbyar in Rustenburg”. The procedure was then as follows:

1. People were approached as is the practice for SOS Barnbyar either by asking if they had a moment, had heard about SOS Barnbyar or were interested in seeing a short film about the work of SOS Barnbyar.
2. Before being exposed to the film, people were asked if they had supported SOS Barnbyar before and/or if they had thought about maybe doing so in the future. Furthermore, they were asked about their general impression of SOS Barnbyar. These questions were asked during the setup of the film to make it a natural part of conversation for example, by asking the questions while fixing the VR headset.
3. Participants were then showed the film (either in 2D or VR).
4. After exposure of stimuli, the people were asked what they thought about the film/VR experience, how they felt when seeing it and what they thought about the organization’s initiative.
5. As the authors had been educated about SOS Barnbyar and their work around the world, this information was also a natural part of conversations. Asking if people would like to engage in the organizations by signing up as monthly supporters or donating a one-time gift was hence presented as a follow-up after discussing SOS Barnbyar and their work in general.

The experiment was carried out in Kungsträdgården on Tuesday 11th and Tuesday 18th of April 2016 between 11:30 and 13:30.

6.2.4 Data collection

The method to collect the quantitative and observed data naturally differed. The quantitative data was collected in a prepared excel sheet on an iPad. The categories were number of people approached, number of people agreeing to see the film, gender, average age, brand familiarity and attitude to organization¹². This was quickly filled in directly after respondents had left. Directly after the experiment, the observations were discussed between the authors and findings were categorized according to patterns seen.

6.3 Data analysis

The data analysis differed depending on if the data collected was quantitative or qualitative. Parts of the study were not suitable for quantitative analysis, such as observed reactions and described experiences. These were instead described, organized and analysed according seen patterns.

6.4 Results

Firstly, the results are presented to show the effects of VR on actual donation behaviour in the real-life setting of the experiment and secondly, they aim to present the other observed observations (not seen in Study 2). The findings are categorized as donation behaviour, other behavioural observations, traction of the medium and reactions and attitudes. First, Table 8 starts with illustrating descriptive findings from the experiment.

	VR	2D
Number of people approached	46	68
% Agreed to see the film	52%	23%
% Men	67%	56%
% Women	33%	44%
Average age ¹³	Approx. 30 years	Approx. 30 years
% Know of SOS Barnbyar	88%	95%
% Supported SOS before	8%	6%
	Positive: 63 Neutral: 33% Negative: 0% Inconclusive: 4.1%	Positive: 69% Neutral: 25% Negative: 6% Inconclusive: 0%
Brand Attitude		
Brand Attitude after stimuli	To be further described in the	To be further described in the

¹²The question on attitude towards SOS Barnbyar, was however deemed appropriate to quantify in the sense that the answers could usually be interpreted in a straightforward way. Hence, these answers were divided into categories “positive”, “neutral”, “negative” and “inconclusive”.

¹³ Based on estimated ages.

	analysis section.	analysis section.
Reactions & Comments	To be further described in the analysis section.	To be further described in the analysis section.
% of people signing up for monthly support	0%	0%
% of people giving a one-time gift	8.3 %	0%

Table 8: Descriptive results from Field Experiment (VR data collected on the 11th of April and 2D data collection on 18th of April

6.4.1 Donation intentions

The number of single donations in total was only two; both from participants in the VR experiment. Of what was known, nobody signed up to be a monthly supporter (Table 8). Although this might be an indication of higher success rate of donations following VR, it is clearly not a large enough sample to make any generalizations or draw statistically-based conclusions.

6.4.2 Other behavioural observations

What was also observable was that the VR-equipment seemed to have a greater traction on men than women and that children, also mostly boys, approached the experiment and wanted to try the equipment. Older people were generally not as prone to try out the gear, indicating that VR might attract a younger crowd in general. Also, the few children that took part in the experiment all engaged in the experience more physically than the adults. They grabbed in the air to “touch” things in the film, waved at the children in the film and explored much more of the angles than adults. This may be due to a lower rate of self-awareness among children and the fact that they do not care if they look silly.

6.4.3 Traction of the medium

Observing the traction of each medium, it was evident that VR itself posed a higher traction power than 2D-film. This was also tested statistically using a chi-squared goodness of fit test¹⁴.

¹⁴ Calculated by hand according to the following equation: $\chi^2 = \sum (O_i - E_i)^2 / E_i$

- a. $E_i = (46 + 68) / (24 + 16) = 35\%$
- b. $E_{VR} = (0.35 * 46) = 16.14$
- c. $E_{2D} = (0.35 * 68) = 23.86$
- d. $(24 - 16.14)^2 / 16.14 = 3.83$
- e. $(16 - 23.86)^2 / 23.86 = 2.59$
- f. $\chi^2 = 3.83 + 2.59 = 6.42, df = 1$
- g. $\chi^2 = 6.42, p < 0.01$

The chi-square test confirmed that there was a significant deviation from expected values $\chi^2(1) = 6.42$, $p < 0.01$. Hence, the traction was significantly lower for 2D and significantly higher for VR. Maybe not surprisingly, due to its relatively new commercialization, several people approached the booth voluntarily seeing that VR-film was offered. In addition, over half of the people who were approached offering a VR experience agreed, which is a relatively high share. For 2D, fewer of the approached people agreed to view the film and no one voluntarily approached the booth when 2D was shown.

6.4.4 Reactions and attitudes

The observed reactions and attitudes towards the VR film were strikingly different from those towards the 2D. This part of the data collection was done by noting the reactions and taking quotes from participants. Due to the nature of this data collection and the confounding factors, these results should be taken as indicators of certain effects rather than evidence. This part of the field experiment rather attempted to describe and analyse observed reactions than to collect quantifiable data.

An overwhelming majority of people in the VR part of the experiment expressed positive reactions. Specifically, several participants described the experience in terms of being in another place.

“I felt as if I was there and almost wanted to touch the children in the film.” – boy, aged 10.

Other reactions were that this kind of film was effective or a “smart” way to show what SOS Barnbyar is doing. Touching on the potential signalling aspects of using VR, some of the participants commented that they were impressed with the film.

“I think that this is a very smart way to show how you are working around the world. This is very important to show people”. Female, aged 60.

Few participants mentioned anything particularly about empathy, however several participants indicated that they felt emotionally affected. Also, it was common to show elements of surprise, in other words that they were surprised by the feeling of VR.

“This was something above the normal. I feel really moved actually”. Female, aged 40.

Being moved by the film was apparent when watching the 2D film as well, however, none of the people watching the 2D film described the feeling of being in another place or being

surprised. Their reactions mostly concerned the information in the film and not the experience itself. When asked about a potentially changed opinion on SOS Barnbyar, few participants in the experiment expressed any particular change of view.

6.5 Discussion

The most obvious differences between face-to-face promotion using VR versus 2D was the traction, attitude towards the film and general reactions. However, no observations were made regarding a potential changed attitude towards SOS Barnbyar nor willingness to support the organization. Hence, the results from the field study seems to further confirm what Study 2 had indicated but in an authentic environment.

There indeed seems to be a traction of the medium itself which might be motivation enough for charitable organizations to use it in face-to-face fundraising. People who were approached with VR were much more likely to agree to engage in a conversation. This was also in line with reports from Study 1 (Interview 10, Plan Sverige, 3 March 2017). However, as the medium gets more commercialized it is unclear if this effect will be lasting. Furthermore, as predicted by previous research on presence (Suh & Lee, 2005), several of the participants reported feeling as if they were actually present in another place. This again supports the assumed uniqueness with VR as compared to the 2D medium. This surprise element that many people experienced indeed seemed to have a positive effect as participants expressed positive emotions towards the film. Also, even if “empathy” was not used literally, several participants expressed that they felt moved.

Another conclusion is that new target groups may be reached with the use of VR. Today, the average supporter of SOS Barnbyar is women aged 30-60. In the Field Experiment it was clear that mostly men were attracted to this medium. As mentioned previously in an interview with Plan Sverige (Interview 10, 3 March 2017), technically interested younger men may be a suitable target with VR which open up for new possibilities for marketing. Also, reaching out to children, especially boys in young ages, seems like a good possibility to influence and engage them in a young age.

In terms of attitudes toward the brand, no specific indications of change could be found. Most participants did not express a changed attitude towards SOS Barnbyar after seeing the film in VR nor 2D. This, together with the results from Study 2, might indicate that there is no direct effect on branding such as described as an objective by organizations in Study 1. Again, this

might be due to the fact that attitudes may take time to change and hence future studies could investigate research on brand effect from using VR over a longer time period. As for donation intentions, no particular evidence could be found for higher donations with the aid of VR; a result in line with the results on intended donations in Study 2. Of course, the fact that the authors were novices to this kind of promotional activity may play a part in how effective they were in convincing participants to donate. However, this should not have differed significantly between the two days.

Initially, the experiment was set out to take place during two consecutive days but the second part had to be postponed due to weather circumstances. Still, on both days, the weather was cloudy and between 7-12 degrees, which can have had an effect on the number of by-passers and/or their willingness to stop. It is also worth mentioning that the terror attack on Drottninggatan had taken place just a few days before, which might also have influenced the number of by-passers or maybe even the general atmosphere and attitude in the city.

7. GENERAL DISCUSSION

Firstly, this thesis has confirmed the relevance of VR as a marketing tool for charitable organizations. Secondly, it has demonstrated the effects that the use of VR has on consumer perceptions, attitudes and behaviour. In summary, positive effects were most apparent on ad attitude as well perceived presence, empathy, effort and creativity. Also, there was an apparent higher traction of the medium then tested on the field.

From the results in Study 1, addressing how VR is used in charitable organizations today, it was clear that the attention that VR has been given in the media also manifested itself in actual marketing strategies among charitable organizations. It was evident, that many charitable organizations expressed a belief in the medium's ability to create an impact. Specifically, the medium was used to enhance branding, encourage engagement or involvement and connect emotionally with potential supporters. Given the nature of charitable organizations, where marketing spending needs to be ethically balanced, it is important to encourage a continued and more extensive research on the field of VR.

Looking at the effects of VR on consumer perceptions, attitudes and behaviour, that was investigated in Study 2 and Study 3, several interesting findings were made. The main points worthy of highlighting is the positive effect on ad attitude and perceived presence, empathy, advertising effort and creativity. These results were in line with the expected effects expressed by the organizations in Study 1. No support was found for other expected effects such as enhanced brand attitude, donation intention, actuals donations or perceived advertising expense. However, as previous research has demonstrated a link between brand attitude and ad attitude (Gardner, 1985), evaluations of creativity (Dahlén, Rosengren & Törn, 2008) and effort (Ambler & Hollier, 2004), there might still be long-term effects that could not be demonstrated here due to the nature of the experiment. One can question whether it is a reasonable assumption at all that brand attitude and donation intention should be affected by a one-time marketing effort, independent of the strength of the medium. The decision to support charitable organizations may be based on a complex combination of factors such as believed moral obligation (Cheung & Chan, 2000), personality traits and personal values (Bennett, 2003), which probably will not change over a day. However, attitudes towards charitable organizations are something that may change over the longer run and VR might still be a mean towards that end.

Another note concerns the effect on perceived creativity, effort and traction of the medium. Although the effects on these variables were apparent, the stability over time for these results may be questioned. Being perceived as creative has partially to do with that the observer perceives something as novel, which VR will not be forever. For now, potential traction may be enough of an incitement to use the medium in face-to-face fundraising. However, as the medium gets more common, these effects might change or even decline.

From the perspective of a charitable organization, these conclusions should come as an indication that their investments in VR can be justified. The way VR has been used thus far by most charitable organizations, namely as a complement to other marketing and for event usage, seems to be adequate given what we know so far. The feeling of being in another person's shoes indeed seems to be realized by the usage of VR. How strong this effect is and if it can produce any long-lasting results on brand attitude and donation intentions was not observed in this thesis but might be investigated further in future research.

8. MANAGERIAL IMPLICATIONS

In terms of practical implications for charitable organizations the following conclusions can be drawn. Firstly, there seems to be a positive effect of using VR, thus it can be justified to continue to explore VR as a marketing tool. Secondly, support was found for the fact that VR-viewers feel more present and empathetic than viewers of 2D. Even though no support was found for actual helping behaviour, other objectives such as consumer learning might be sought. Thirdly, due to the very early stages of research on VR and the fact that costs potentially will decrease over time as the medium gets more commercialised, there is room for experimentation.

The positive effects of VR such as enhanced ad attitude, perceived presence, empathy, creativity and effort should be regarded as a justification for further exploration of the medium. Specifically, the effect on perceived empathy should be of extra interest for organizations working for social causes. Compared to traditional 2D marketing, the findings of this thesis indicate that VR is superior in allowing perspective taking – something that is a central objective in marketing efforts from charitable organizations. Although no instant change in donation intention or brand attitude could be observed, letting VR complement overall communications strategy may be rewarding long-term.

From Study 1, it was clear that various organizations had differing objectives, both action-based and more informative. In terms of how and when organization should use VR, it appears that the objectives of VR usage should perhaps not be action-focused but rather informative and a way of forming emotional connection. Objectives such as learning and reinforcing belief in where one's money is placed (e.g. loyalty management) may be more suitable objectives than eliciting helping behaviour from first-time givers. Establishing an emotional connection with potential supporters may still be rewarding long term, even though no instant effects on brand attitude were found in this study.

A third implication of the results is also that there seems to be room for experimenting with this medium. In the film that was used in the experiment, there was no clear call-to-action. Future productions might incorporate elements of call-to-action in the actual VR experience to see whether this may influence engagement or donations. All in all, there are several areas that are calls for further experimentation and exploration.

9. CRITIQUE OF STUDY

Although the aim of the master thesis has been to provide robust results on every level possible, as in all academic research the thesis also has limitations. First and foremost, the thesis has a quite broad scope which might compromise depth of areas of interests. Secondly, in terms of sampling, the size and sample nature for all three studies could have been different to make the results more generalizable. Thirdly, the choice of MANCOVA as a statistical method for analysis in Study 2 could have been complemented with a repeated measures ANOVA. Lastly, other external factors might have affected the results.

Since VR as a marketing tool is academically unexplored, it was not clear which area of VR would be most rewarding or relevant to focus on. Hence, a choice was made to create a holistic picture, which could stand as base for future researchers who would want to dig in deeper into specific areas of the field. The choice of going big and broad may have come at the expense of depth in certain areas. For example, the scope could have been narrowed to solely focusing on presence and empathy. Yet setting, the more general scope was deemed more valuable at this early stage academic research is in on this area.

Secondly, the size of samples and nature of the samples could have been changed to increase generalizability. In Study 1, a larger sample of charitable organizations in Sweden, which use VR could not be found, yet more interviewees of charitable organizations, which did not use VR, could have been an alternative. In Study 2, the sample mainly consisted of students, which may have affected the results. For example, the average income situation for students may make them less inclined to donate their money to charities, independent of whether they believe it is for a good cause or not. However, when asked about how often they donated money to charities, the sample proved almost equally generous as the average population (Välgörenhetsbarometern, 2016) – something that might be explained by the particular demographics of average students at SSE and KTH. In general, a larger sample size that was more representative of the whole population would have been desirable.

Thirdly, the choice of using an MANCOVA for statistical analysis in Study 2 could be criticised. An alternative method would have been to look at the gain difference in brand attitude and donation intention through a repeated measures ANOVA. Instead it was argued that controlling for the pre-conditions with the aid of covariates should be sufficient to compare differences between groups. Hence, the potential within-group effect was not further analysed.

As addressed by Lord's Paradox¹⁵, there might be different result depending on the approach used. However, given that the participants in the groups were randomly assigned and the initial differences were controlled for, the results should theoretically be similar independent of the approach. It is also a matter of hypothesis formulation; if one seeks the difference in change between groups or a difference in outcome assuming the same initial conditions. In this case, the choice was to compare outcome between groups. However, if the study would have been conducted again, a repeated measures ANOVA would have been considered.

Lastly, concerning Study 3, external factors may have affected the results. Although conducted in April, Swedish spring weather is all but reliable. The temperature was rather cold when the experiment was conducted leading to potential downfall in interest as the VR film required the participants to sit down for a couple of minutes. Also, the experiment was conducted only a few days after the terror attack on Drottninggatan, which might have affected over all atmosphere as well as people's' inclination to go to crowded places such as Kungsträdgården and the overall atmosphere was affected. Furthermore, even though the authors were educated in face-to-face fundraising, this was the first time were the skills were tested. Hence, potential flaws in techniques of approaching due to unfamiliarity with the situation may also have affected the results.

¹⁵Investigating results before and after a treatment can be approached either by comparing the gain scores between groups (e.g. through a repeated measures ANOVA) or by comparing final scores and partialling out the initial scores (e.g. through an ANCOVA). Lord's Paradox showed that these methods can lead to different conclusions (Wright, 2006).

10. DIRECTIONS FOR FUTURE RESEARCH

Given the quite recent commercialization of VR and its usage as a marketing tool, there are many exciting possibilities for future research. Investigating different kinds of charitable causes, further probing the relationship of presence and empathy and looking more closely on long-term effects of VR usage are some potential routes for future research.

A first thing of interest would be for future researchers to consider a larger variety of charitable causes. Due to restriction in time and resources, this thesis only covered films by SOS Barnbyar and the topic of children in need. It would be interesting to see if VR would be more or less efficient in promoting different types of charitable causes.

Furthermore, the relationship between perceived presence and empathy remains quite unexplored. This thesis shows that VR potentially is a better tool for conveying empathetic feelings than 2D film. The deeper meanings and underlying mechanisms of this would be valuable to investigate. For example, under which conditions empathic concern leads to change in behaviour. For instance, VR could be used as in research as a tool for measuring empathy in different ways. By looking closer at the relationship between presence and empathy, one might find other industries or type of organizations that could benefit from using VR in their communications.

Lastly, the positive effects from VR found in this study did not show any significant effect on neither donation intention nor brand attitude. However, it would be interesting to study the usage of VR more long-term – for example comparing brands that have incorporated VR in their communications strategy over a longer period of time. These potential areas are only some of the many possibilities within research on VR and its application as a marketing tool. The authors of this thesis are confident that even more areas of exploration will appear as the technology evolves and only creativity sets the limit.

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11.3 Interviews

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Blom Wiberg, K. (2017), Kommunikationsansvarig, Blodcentralen Stockholm (Interview 2), 01.03.2017

Cory, A. (2017), Projektledare, Biståndsorganisationen SIDA (Interview 3), 28.02.2017

Drufva, A. (2017), Marknadschef, Naturskyddsföreningen (Interview 4), 10.03.2017

Eelde Koivisto, I. (2017), Founder, Pratham Sweden (Interview 5), 03.03.2017

Gillberg, V. (2017), Kommunikatör, Diakonia (Interview 6), 16.03.2017

Hamberg, E. (2017), Head of Face-to-Face communication, SOS Barnbyar (Interview 7), 16.02.2017

Hamberg, E. (2017), Head of Face-to-Face communication, SOS Barnbyar (Interview 8), 10.04.2017

Lernfelt, M., (2017), Kommunikatör - Presskontakt/Opinion, Göteborgs Stadsmission (Interview 9), 13.03.2017

Löfgren, N. (2017), Projektledare Opinionsbildning /Project Lead, Plan (Interview 10), 03.03.2017

Olsson, M. (2017), Kommunikationsansvarig, WaterAid (Interview 11), 10.02.2017

Sandberg, I (2017), Givarservice, SOS Barnbyar (Interview 12), 16.02.2017

Strandell, M. (2017), Producer/Executive Producer, SOS Barnbyar (Interview 13), 16.02.2017

12. Appendices

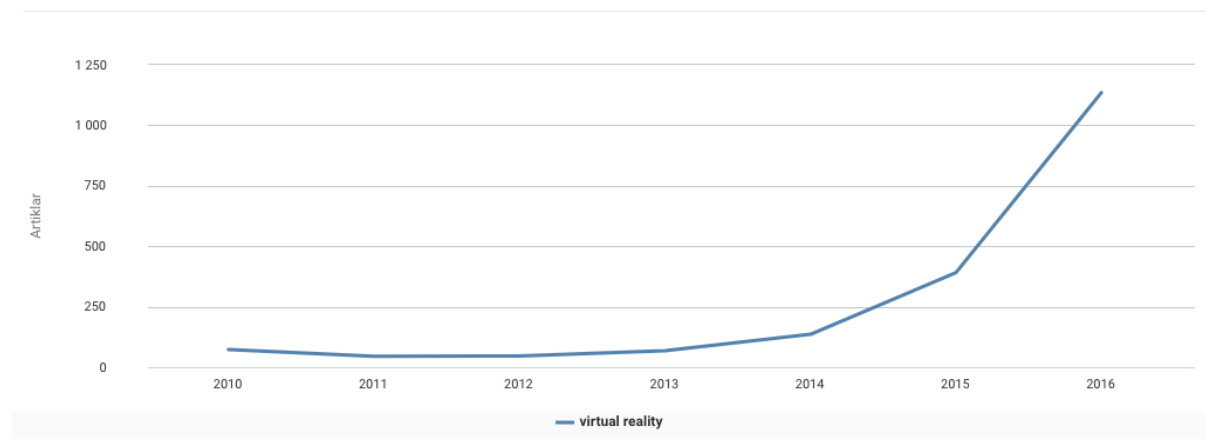
Appendix 1: Variables

Variables	Scales	Endpoint labels (range)	Reference	Reliability (Cronbach's Alpha)
Brand attitude (before stimuli)	What is your overall evaluation of the brand?	Very bad/Very good (1 to 7) Very unpleasant/Very pleasant (1 to 7) Very unfavourable/ Very favourable (1 to 7) Very unlikeable/Very likeable	Smith et al. (2008)	0.90
Brand attitude (after stimuli)	What is your overall evaluation of the brand?	Very bad/Very good (1 to 7) Very unpleasant/Very pleasant (1 to 7) Very unfavourable/ Very favourable (1 to 7) Very unlikeable/Very likeable	Smith et al. (2008)	0.93
Ad attitude	What is the overall evaluation of the film you saw?	Very bad/Very good (1 to 7) Very unpleasant/Very pleasant (1 to 7) Very unfavourable/ Very favourable (1 to 7) Very unlikeable/Very likeable	Smith et al. (2008)	0.81
Donation Intention	I can imagine donating money to SOS Barnbyar in the future.	Very unlikely/Very likely (1 to 7)	Basil et al. (2008)	
VR attitude	I believe VR is exciting. I believe VR is interesting. I believe VR has a promising future.	Strongly disagree/Strongly agree (1 to 7)	NHTV	0.82
Charity attitude	Money donated to charitable organizations are directed to good causes. My view of charitable organizations is over all positive. Charitable organizations have done a good job with helping people in need. Charitable organizations have a valuable function in society.	Strongly disagree/Strongly agree (1 to 7)	Webb et al. (2000).	0.84
Creativity	The film was different. The film was unusual. Overall, the film was very creative.	Strongly disagree/Strongly agree (1 to 7)	Smith et al. (2007)	0.81
Presence	In the computer generated world I had a sense of "being there". I felt as if I took part in what was happening in the film. There were times during the experience when the computer generated world became more real or present for me compared to the "real world".	Strongly disagree/Strongly agree (1 to 7)	Slater, Usoh and Steel (1994)	0.92

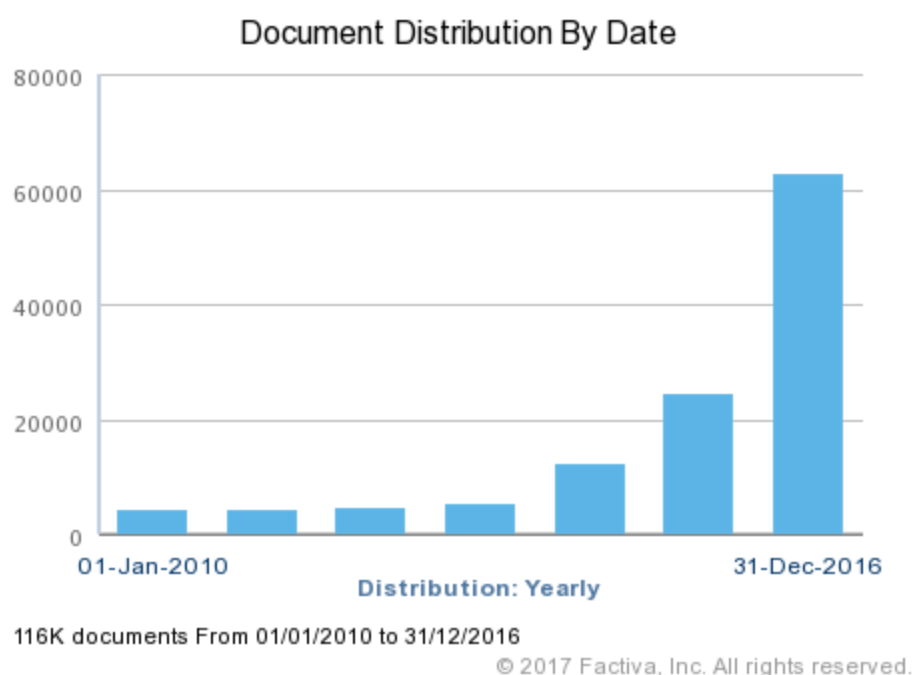
	The computer generated environment seems to me like a place I saw. (R) The computer generated environment seems to me like a place I visited. (R)			
Empathy	I felt as though I was right there in the ad experiencing what the child was experiencing. As I watched the ad I could actually feel what the children were experiencing. The ad tended to evoke within me a desire to offer help or protection to the children. I really felt deep sympathy for the children. The ad caused me to have tender feelings of concern for the children.	Strongly disagree/Strongly agree (1 to 7) Not applicable (8)	Bagozzi (1994)	0.93
Effort	How much effort has been put into producing this film?	Very little effort/A lot of effort (1 to 7)	Kirman i (1990)	
Expense	Compared to other promotional films for charitable organizations, how costly was the production of this film?	Very much below average / Very much above average (1 to 7)	Kirman i (1990)	

Recoded reverse-scored items = (R)

Appendix 2: Number of articles mentioning “Virtual Reality” in Swedish Press, 2010 - 2016. From Retreiver, 10.05.2017



Appendix 3: Number of articles mentioning “Virtual Reality” in International Press, 2010 - 2016.
From Factiva, 10.05.2017



Appendix 4: Interview script Study 1

Organizations:

Interviewee:

Date:

1. Berätta om vad ni har gjort relaterat till VR hittills
2. Varför har ni valt att använda VR?
3. Vad har ni väntat er för effekter av VR?
4. Upplever ni någon skillnad i reaktioner hos målgruppen när ni använder er av VR gentemot traditionella marknadsföringsmetoder? Om ja, hur skiljer de sig?
5. Vad har ni fått (om ni har fått) för feedback från de som har testat VR?
6. Har ni märkt någon skillnad i givarbeteende, har folk donerat mer eller mindre pengar till följd av VR?
7. Skulle ni kunna tänka er att använda VR igen?
8. Hur mycket pengar har ni lagt på VR senaste året (om ni vill avslöja)?
9. Hur mycket pengar planerar ni att lägga på VR 2017?
10. Tror du att ni kommer att lägga mer eller mindre pengar på VR i framtiden?
11. Kommer VR ersätta någon av era befintliga marknadsföringsmetoder?
12. Är VR värt pengarna tycker ni och hur mäter ni det (om de vill svara på det)?
13. Vad är organisationens attityd till VR?
14. Kan ni tänka er att använda VR i framtiden?
15. Finns det anledningar till varför ni inte har använt VR (har tänkt er att använda det)?

Appendix 5: Questionnaire Study 2

5/14/2017

Qualtrics Survey Software



Handelshögskolan i Stockholm

Introduktion

Kära deltagare,

Stort tack för att du tar dig tid att delta i vår studie. Denna studie kommer att ligga till grund för vår masteruppsats i marknadsföring som vi skriver på Handelshögskolan i Stockholm. Studien handlar om att undersöka individers uppfattningar om olika slags filmformat i reklamfilmer för välgörenhetsorganisationer.

Efter att ha besvarat några frågor kommer du snart att få se en film som är ungefär 2 minuter lång, följt av ytterligare några fler frågor. Enkäten tar ungefär 5 minuter att besvara. Vissa frågor kan påminna om varandra på grund av undersökningstekniska skäl. Vänligen besvara dem utan att titta tillbaka på tidigare svar eller försöka minnas tidigare svar.

Vill du vara med och tävla om ett 2 månader långt abonnemang på Netflix eller HBO Nordic har du möjlighet att fylla i din mailadress i slutet av enkäten.

Julie & Alexandra

Demografiska frågor

Nedan kommer du att få svara på några demografiska frågor.

Kön

Kvinna
☐

Man
☐

Annat
☐

Ålder

Huvudsaklig sysselsättning

☐ Arbetar som anställd☐ Långtidssjukskriven (Mer än 3 månader)☐ Egenföretagare☐ Får sjuk- eller aktivitetsersättning☐ Student☐ Föräldraledig☐ Ålderspensionär☐ Annat☐ Arbetslös

Hur stor är ditt hushålls totala nettoinkomst i månaden (i SEK)? Gör en uppskattning om du inte vet den exakta siffran. (Med nettoinkomst menas den totala inkomsten efter skatt och andra transfereringar som till exempel CSN eller andra bidrag.)

Attityd till VR

Nedan följer några frågor om Virtual Reality.

Har du hört talas om Virtual Reality?

Ja
☐Nej
☐Vet ej
☐

Hur skulle du definiera Virtual Reality?

Hur väl anser du att följande påståenden stämmer?

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med
Jag tycker att Virtual Reality är spännande	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag tycker att Virtual reality är intressant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag har inga särskilda känslor kring Virtual Reality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag tycker att Virtual Reality är konstigt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med
Jag tycker att Virtual Reality är skrämmande	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag tror att Virtual Reality har en lovande framtid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag tror att Virtual Reality bara är en kortvarig trend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Har du tidigare i ditt liv upplevt Virtual Reality med hjälp av VR-glasögon?

☐ Ja
 ☐ Nej
 ☐ Vet ej

Hur väl stämmer följande påstående?

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med
Min upplevelse av Virtual Reality var överlag positiv	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle vilja prova på Virtual Reality igen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle vilja ha möjlighet att använda Virtual Reality mer frekvent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Attityd till välgörenhetsorganisationer

Nedan följer frågor om dina uppfattningar om välgörenhetsorganisationer. Vi definierar välgörenhetsorganisationer brett. Med välgörenhetsorganisationer avses organisationer som jobbar för välgörande ändamål, oavsett om det rör att hjälpa fattiga barn, rädda utrotningshotade djur eller främja forskning av sjukdomar.

Hur ofta donerar du pengar till välgörande ändamål?

☐ Minst 1 gång i veckan
 ☐ Minst 1 gång i månaden
 ☐ Minst 1 gång i kvartalet
 ☐ Minst 1 gång årligen
 ☐ Mer sällan än en gång årligen
 ☐ Aldrig

Hur ofta ger du bort icke-monetära medel (t.ex. mat, kläder eller annat) till välgörenhet?

Minst 1 gång i veckan	Minst 1 gång i månaden	Minst 1 gång i kvartalet	Minst 1 gång årligen	Mer sällan än 1 gång årligen	Aldrig
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hur väl anser du att följande påståenden stämmer?

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med
Pengar som doneras till välgörenhet går till projekt med goda ändamål	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Min bild av välgörenhetsorganisationer är positiv	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Välgörenhetsorganisationer har lyckats bra med att hjälpa behövande	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Välgörenhetsorganisationer har en värdefull funktion i samhället	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Attityd till SOS Barnbyar

Känner du till SOS Barnbyar?

Ja	Nej	Vet ej
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Vad är din uppfattning om SOS barnbyar?

Mycket dålig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket bra
Mycket obehaglig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket behaglig
Mycket ofördelaktig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket fördelaktig
Inte alls tilltalande	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket tilltalande

Hur väl anser du att följande påståenden stämmer?

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med
Jag litar på SOS Barnbyar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SOS Barnbyar känns som en trygg organisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SOS Barnbyar känns som en ärlig organisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle kunna tänka mig att donera pengar till SOS Barnbyar i framtiden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle kunna tänka mig att donera pengar till en annan välgörenhetsorganisation i framtiden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Innan du fortsätter besvara enkäten kommer du att få se en två minuter lång film. Markera det numret som Alexandra eller Julie ger dig här.

☐ 1
 ☐ 2
 ☐ 3
 ☐ 4

Kreativitet (Divergence, relevance, creativity)

Nedan följer frågor om vad du tyckte om filmen.

Jämfört med en genomsnittlig reklamfilm om välgörenhet, hur väl stämmer dessa påståenden om filmen som du såg?

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med
Filmen var annorlunda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Filmen var ovanlig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Överlag så var filmen mycket kreativ	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Filmen borde vinna ett pris för sin kreativitet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ansträngning

Nedan följer några frågor om din uppfattning om filmens produktion.

Hur stor ansträngning har lagts ner på produktionen av denna film?

Väldigt lite ansträngning ☐ ☐ ☐ ☐ ☐ ☐ ☐ Väldigt mycket ansträngning

Jämfört med andra reklamfilmer för välgörenhetsorganisationer, hur kostsam tror du att denna film var att producera?

Väldigt långt under
medelkostnad ☐ ☐ ☐ ☐ ☐ ☐ ☐ Väldigt långt över
medelkostnad

Närvaro

Nedan följer några frågor om hur det kändes att se på filmen. Ange i vilken omfattning du anser att det stämmer.

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med
Jag upplevde det som om jag faktiskt befann mig i filmens miljö	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Det kändes som att jag var en del av det som hände i filmen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Det fanns stunder under filmupplevelsen när jag kände mig mer närvarande i filmen än i den verkliga världen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Miljön i filmen kändes som en plats som jag såg	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Miljön i filmen kändes som en plats som jag besökte	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Attityd till filmen

Filmen jag såg var:

Mycket dålig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket bra
Mycket obehaglig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket behaglig
Mycket ofördelaktig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket fördelaktig
Inte alls tilltalande	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket tilltalande

Empati

Nedan följer några frågor om hur du blev påverkad av filmen. Ange i vilken omfattning du anser att det stämmer.

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med	Kan ej ta ställning
Det kändes som om jag var där och upplevde vad barnen i filmen upplevde	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
När jag såg filmen så kunde jag känna det som barnen i filmen kände	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Filmen väckte en vilja att erbjuda hjälp eller skydd till barnen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag kände djup sympati för barnen i filmen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Filmen fick mig att ömsint känna oro för barnen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle känna skuld om jag inte donerade pengar efter att ha sett denna film	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle känna mig ledsen om jag inte donerade pengar efter att ha sett denna film	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle ångra mig om jag inte donerade pengar efter att ha sett denna film	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Attityd till SOS Barnbyar efter filmen

Nedan följer några frågor om din inställning till SOS Barnbyar efter att ha sett filmen. Vissa frågor kommer du att kännas igen från början av enkäten.

Vad är din uppfattning om SOS barnbyar?

Mycket dålig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket bra
Mycket obehaglig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket behaglig
Mycket ofördelaktig	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket fördelaktig
Inte alls tilltalande	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mycket tilltalande

Hur väl anser du att följande påståenden stämmer?

	1; Håller absolut inte med	2	3	4	5	6	7; Håller absolut med
Jag litar på SOS Barnbyar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SOS Barnbyar känns som en trygg organisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SOS Barnbyar känns som en ärlig organisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle kunna tänka mig att donera pengar till SOS Barnbyar i framtiden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jag skulle kunna tänka mig att donera pengar till en annan välgörenhetsorganisation i framtiden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Actual donation

Skulle du vilja stödja SOS Barnbyars arbete för en tryggare tillvaro för världens barn redan idag?

Swisha en slant till detta nummer: 900 22 96. Alternativt går det att föra över din gåva via Plusgiro (90 02 29-6) eller Bankgiro (900-2031). Skriv "Enkät VR/2D" i meddelandefältet på din överföring.

Detta är helt frivilligt, men allt stöd behövs. Gör i sådana fall detta nu och klicka nästa.

Stort tack!

E-mail

Vill du vara med och tävla om 2 månaders abonnemang på Netflix eller HBO? Fyll då i din epostadress i fältet nedan så lottar vi ut en vinnare innan sista april.

Thank you.

Stort tack för din medverkan! Vi kommer att återkoppla till vinnaren av tävlingen i slutet av april.

/Alexandra & Julie

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Appendix 6: Normality Checks Shapiro-Wilks test

Variable	Group 1: VR Charity (n=40)	Group 2: 2D Charity (n=40)	Group 3: VR Neutral (n=40)	Group 4: 2D Neutral (n=41)
Ad attitude	(W(40)=0.966, p>.05)	(W(40)=0.957, p>.05)	(W(40)=0.946, p>.05)	(W(40)=0.989, p>.05)
Brand attitude	(W(40)=0.923, p<.05)	(W(40)=0.968, p>.05)	(W(40)=0.937, p<.05)	(W(41)=0.949, p>.05)
Donation intentions	(W(40)= 0,916, p<.05)	(W(40)= 0,900, p<.05)	(W(40)= 0,882, p<.05)	(W(41)= 0,857, p<.05)

For the variable ad attitude, no significant difference from a normal distribution could be determined for neither group 1 (W(40)=0.966, p>.05), group 2 (W(40)=0.957, p>.05), group 3 (W(40)=0.946, p>.05) nor group 4 (W(40)=0.989, p>.05). Brand attitude, however yielded a normal distribution for group 2 (W(40)=0.968, p>.05) and 4 (W(41)=0.949, p>.05) but not for group 1 (W(40)=0.923, p<.05) and 3 (W(40)=0.937, p<.05). Also, for the variable donation intention, none of the four groups tested yielded normal distributions (Group 1 (W(40)= 0,916, p<.05), Group 2 (W(40)= 0,900, p<.05), Group 3 (W(40)= 0,882, p<.05) and Group 4 (W(41)= 0,857, p<.05).

Appendix 7: Box plots for the variables presence, empathy, creativity, effort and expense

