



## ATTITUDES TOWARDS VIRTUAL REALITY GAMING AND PRODUCTS

Eppu Siirtola

International Business  
Bachelor's Thesis  
Supervisor: Suzanne Altobello  
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**Author:** Eppu Siirtola

**Title of thesis:**

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**Date:** 9 April 2018

**Degree:** Bachelor of Science in Economics and Business Administration

**Supervisor:** Suzanne Altobello

**Objectives**

The main objective of this study was to explore the attitudes towards virtual reality gaming and the products surrounding it to identify the reasons why consumers choose to purchase and adopt the usage of these devices. The study also analyzes the components of added value that virtual reality gaming brings on top of a more traditional gaming experience

**Summary**

An extensive examination of already published academic research regarding product adoption and value concept was conducted to realize the key notions that would act as the cornerstones of the primary research. A quantitative survey was designed for the relevant sample to see whether the earlier findings on the topics of product adoption and value concept resonated with the results gathered from the survey focusing on virtual reality gaming and the products surrounding it.

**Conclusions**

The research shows that the product adoption in the virtual reality gaming market essentially operates under the already established concepts of product adoption. The emphasis on the influence of early adopters and leading-edge users was apparent in the survey results.

The elements of additional value gained from the virtual reality gaming can be categorized to health, social and experimental value that link to utility and satisfaction aspects of existing value concepts.

Virtual reality gaming market has enormous potential for businesses of various fields varying from hardware to B2B solutions to eCommerce. As the market matures from the hype cycle stage of technology market development towards the sustainable market stage, the potential customer base of alternative realities should enable mass consumerism.

**Key words:** virtual reality, product adoption, value added, video games

**Language:** English

**Grade:**



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# 1. INTRODUCTION

This section of the thesis focuses on the introduction of the topic under study. It will delve into the reasons of why the subject is a compelling area of inspection and why it deserves to be scrutinized further. The section will also include the pivotal research problems surrounding the field and proposes questions that should be tapped into to actualize the objectives of the research introduced in the end of the section.

## 1.1. Background

Video games and gaming as a form of entertainment is a phenomenon that has had many shapes and forms during its relatively short existence so far. Early 1970s saw the first emergence of video game consoles that were connectable to regular television setups which opened a whole new market to the consumers to enjoy. Ever since, the product designers and developers in the video game industry have attempted to discover the ultimate source of competitive advantage over their competitors, offering different solutions to their customers varying from handheld consoles to mobile games to virtual reality gaming to tap into the different segments.

Virtual reality gaming in its core has changed massively since its infancy. The concept of alternative, controllable reality has been a fascinating subject ever since the 1950s but the advancements in technology for it to become an affordable reality for an average consumer of the video games market have been discovered in the past 10 years. 2010 saw the first prototype of Oculus Rift which many consider the “grandfather” of the modern virtual reality gaming and products. Since then, many large companies in the industry have released their own versions of head-mounted displays (HMD) used to enjoy video games with virtual reality options, trying to one up their competitors in the new market.

While the predicted growth for the virtual reality gaming market is huge, the adoption of this innovative technology has been relatively slow and more traditional gaming options still reign supreme over it. This can be due to several factors.

## **1.2. Significance of Research**

According to several sources, the market of virtual/augmented reality gaming is predicted to grow massively in the following years from its already relatively large share. Being able to contribute to the subject matter with my research will be beneficial for the field that is still relatively unexplored. On top of contributing to the field of academic research regarding the attitudes towards virtual reality gaming and the products surrounding it, the data gathered during the primary research of the thesis could prove to be useful for the existing and future designers and entrepreneurs who are still in the process of entering the market and are exploring for a source of competitive advantage

## **1.3. Research Problem**

The rather slow adoption of virtual reality gaming by consumers and the currently existing preference of more traditional gaming experience is most likely a combination of several variables. My objective is to provide answers to this by examining the consumer base of virtual reality gaming products to discover the components of added value by VR that make it more preferred option over a more traditional gaming experience. Discovering the alternatives that companies possess to influence the purchase intentions of their customers are also an integral part of this study.

## **1.4. Research Questions**

The research questions of this thesis were specifically chosen to establish a common thread among the inspected topics and to form a meaningful direction for the primary research. The results of the primary research should provide data that aids in answering the following research questions:

- What additional value does virtual reality gaming provide in addition to a traditional gaming experience?
- How should companies allocate their resources to effectively influence on the purchase intentions of the customers?

- Does the market of virtual reality gaming operate under the assumptions of already established conclusions in the existing academic literature?

### **1.5. Research Objectives**

The objectives of this research are tightly knit into the research questions introduced in the former section with the goal of proposing solutions to them. Identifying the value adding components of virtual reality gaming over a traditional gaming experience helps us in realizing the potential features that could be the focal point when designing a virtual reality gaming product. Recognizing the key elements of how a company can influence the adoption and purchase decisions of the customers in the virtual reality gaming market aids us in determining what kind of marketing strategy could be viable in the different segments of the said market. These alternatives will be reached via a carefully crafted survey to the relevant sample. The results will also be compared to the existing academic literature to detect whether the virtual reality gaming market operates under the same established assumptions.

## **2. LITERATURE REVIEW**

This literature review was conducted to achieve a better understanding of the existing academic and non-academic research and knowledge regarding the themes surrounding the subject of the thesis. The review begins with an examination of scholarly work published on the topic of adoption of new innovative technologies and products. The insight gained from the investigation will be essential in constructing the cornerstones of the primary research.

The next section of the literature review will delve into the subject of value for the customer and the numerous interpretations of the concept. While this thesis is mainly focused on the concept of adoption of new innovative technologies and products, it is necessary to scrutinize the research made on customer value as the subject directly ties into the many aspects of product adoption and helps in forming a better understanding of the subject matter.

Third section of the literature review is reserved for the explanation of virtual reality gaming concept and how it came to be. Virtual reality has almost become a synonym for all things related to man-made alternative realities, so it is important that we make a clear distinction between the existing forms of alternative realities and how they differ from each other. The thesis will also present a brief set of information about the current state of the virtual reality gaming market as a justification for the importance of the topic.

To conclude, the ending will attempt to synthesize the information acquired from the three subjects above in a shape of a conceptual framework to lay a foundation for my primary research and what it should consist of.

## 2.1. New Product/Technology Adoption

Substantial amount of the modern research conducted on the adoption of new technologies and products has taken inspiration from the early works of Everett Rogers on *'Diffusion of Innovations'* (1962) (Aizstrauta et al., 2014: 73). In his theory, Rogers (1962) explains how innovations tend to spread within interactions among societies and divided the adopters of products to innovators, early adopters, early majority, late majority and laggards. While the terminology around the subject is rather universal, several different theories have been built upon the work of Rogers (1962) to expand on the knowledge of product adoption and diffusion.

Franke et al. (2006) and Midgley et al. (2000) concentrated on the importance of innovators in the diffusion process and how they 'are at the leading edge of important trends in the marketplace under study and so are currently experiencing needs that will later be experienced by many users in that marketplace' (Franke et al., 2006: 302). Under the assumption that these innovators participate in the communities that are potentially interested in adopting a new product, they may act as opinion leaders and therefore can have a direct influence in the future decisions of customers (Midgley et al., 2000). On top of having positive reinforcement from the original adopters of the product, a study conducted by Cenamor et al. (2013) argues that having a base product with a consistent in-house complementary product portfolio increases the confidence among the potential customers in adopting new products early.

The strong effect of peers on the potential adopters was investigated by Timmor & Katz-Navon (2008) and Xiong et al. (2016). The work of Timmor & Katz-Navon (2008) was built upon the Optimal Distinctiveness Theory that explains product adoption as a psychological battle.

"This theory states that social identity derives from a fundamental tension between human needs for validation and similarity to others – the need for assimilation – and a countervailing need for uniqueness and individuation – the need for differentiation" (Timmor & Katz-Navon, 2008: 249).

Using the Optimal Distinctiveness Theory as their groundwork, the authors concluded after their testing that the size of the group of adopters had a different effect on the potential adopters depending whether their need for assimilation or differentiation was higher than the other. Both the need for assimilation and need for differentiation are affected by social pressure and group norms (Timmor & Katz-Navon, 2008: 250). The human need for differentiation and uniqueness was also noted in the research of Fu & Elliott (2013) of how product innovativeness and product knowledge affect the adoption decision of a potential customer. The acquirement of new product that a consumer considers innovative can be considered an attempt for differentiating oneself from the majority. The bandwagon effect caused by the need for assimilation and a large group of adopters was also recognized by Xiong et al. (2016) in their theoretical framework on peers and their effect on diffusion of innovations. This framework divides peer effects into three distinct categories that occur in different stages of the diffusion process: the information effect, the experience effect and the externality effect. The initial decision for potential product adoption relies on existing basic information about the product, followed by the experience effect consisting of word of mouth knowledge of experiences from the earlier adopters of the product and ending in the externality effect caused by the adoption patterns of the peers of a potential adopter.

While the research conducted by the authors referenced above in this literature review is certainly relevant to my research, it remains to be seen whether the same findings apply in the market of virtual reality gaming and products related to it. The relatively short existence of modern virtual reality gaming makes it rather challenging to draw any groundbreaking conclusions on how the diffusion process work in the market of video games aside from the work of Cenamor et al. (2013) on platform adoption in the video game console market and the positive effect of existing complementary products. Also, according to Davis (1989: 319), the lack of valid, high quality concepts for measuring user acceptance made the investigation of the topic strenuous. While these concepts may exist today, it shows the still developing nature of product adoption research.

## 2.2. Customer Value

The concept of customer value has become increasingly more important as the global markets have developed and evolved over the decades. In his paper about customer value, Woodruff (1997) referenced Butz & Goodstein (1996), saying that “more and more managers lament that product innovation and quality no longer provide the basis for a competitive edge”. Numerous organizations claim that they are providing higher customer value and thus acquiring competitive advantage over others. Ironically, these claims will remain rather ambiguous as clear-cut definition for customer value hasn’t been crafted so far by the scholars of the field (Sánchez-Fernández & Iniesta-Bonillo, 2006: 52; Zeithaml, 1997). Sánchez-Fernández & Iniesta-Bonillo (2006) add that the effect of variables such as cultural values, time frame, place and competition on customer value still need to be studied further which makes constructing a universal definition even more challenging.

Before delving further into the discussion about the definition of customer value, it needs to be clarified that this thesis is focused on the value a customer receives from a transaction. The unclear term of ‘customer value’ has been used for both the value a customer gains from a transaction and the value a business gains from the customer in the transaction (Woodall, 2003). He cleared this confusion in his paper by separating the term into customer lifetime value (CLV) and value for the customer (VC).

It has been recognized how the meaning of customer value differs from person to person (Zeithaml, 1997; Sánchez-Fernández & Iniesta-Bonillo, 2006; Lindic̃ & Marques da Silva, 2011). The product attributes of price, utility, quality and satisfaction tends to equate with consumer value depending how much importance a customer gives to a certain trait of the product. This partially explains why the term customer value doesn’t have a conclusive meaning or why many of the existing frameworks only work within a certain context. In business-to-business context, Anderson & Narus (1998) define value as ‘the worth in monetary terms of the technical, economic, service and social benefits a customer company receives in exchange for the price it pays for a market offering’. After their extensive literature review on the research done on customer value and based on the framework they developed, Sánchez-Fernández & Iniesta-Bonillo (2006) defined customer value the following way

“Consumer value is a cognitive-affective evaluation of an exchange relationship carried out by a person at any stage of the process of purchase decision, characterized by a string of tangible and/or intangible elements which determine, and are also capable of, a comparative, personal, and preferential judgment conditioned by the time, place, and circumstances of the evaluation.”  
(Sánchez-Fernández & Iniesta-Bonillo, 2006)

This definition further demonstrates the ever-changing nature of what value means to a potential customer at different points of the transaction.

The vague structure of the customer value concept has exerted additional pressure on organizations to carefully examine their potential customer base to work out what they truly value about the organization and their products. Lusch et al. (2007), referenced in Frow & Payne (2011) suggests that ‘an enterprise cannot create value, but can only offer VPs’ (VP = value proposition). Payne et al. (2017) referred to Webster (2002) that a customer value proposition ‘should be the firm’s single most important organizing principle’. Payne et al. (2017) also argue that while the term customer value proposition is one of the most popular terms thrown around in the business world, both practitioners and scholars do not fully grasp the idea behind the concept, potentially due to the lack of formidable theoretical groundwork. Based on their research done on the earlier work on the concept of customer value proposition, the authors define the concept as ‘a strategic tool facilitating communication of an organization’s ability to share resources and offer a superior value package to targeted customers’ (Payne et al., 2017). From the three perspectives mentioned in their article, the emphasis on value co-creation linked to the mutually determined customer value proposition perspective has also been considered by other scholars in the field (Frow & Payne, 2011; Ranjan & Read, 2016). Including your potential customers in the customer value proposition process allows an organization to realize their true needs and values and thus allows an organization to refine their customer value proposition to be closer to the target.

The importance of value co-creation has also been notified in the field of video games. Several video game studios have pursued towards more active communication with their playerbases, enabled by the evolution of internet and communication platforms such as



user forums and message boards. A splendid and somewhat extreme example of this can be observed in the relaunch of old school version of a sixteen-year-old PC MMORPG (Massive Multiplayer Online Role Playing Game) Runescape by Jagex Ltd. The 2007 version of the game was resurrected by the developers due to popular demand (<http://services.runescape.com/m=poll/rs2007-server>) and the content updates the game receives are solely decided by the community and players via an in-game polling system, requiring 75% majority of votes for an update to be implemented (<http://services.runescape.com/m=poll/oldschool/index.ws>). While this is a borderline case, it demonstrates the importance of recognizing what your customer base truly values and then acting upon it.

### 2.3. Virtual Reality Gaming

Alternative reality market has been a target of gargantuan capital investments the past decade. 2017 saw a combined figure of 3 billion dollars raised by startups (DigiCapital, 2018) and DigiCapital (2016) predicts that the combined revenue collected from the virtual and augmented reality markets will reach 120 billion dollars globally by the end of 2020. Large, well-known enterprises such as Facebook, Sony, Samsung, Google and Apple among other competitors have already entered the market with their own attempts to appease the hunger of alternative reality enthusiasts. According to Tim Merel (CasualConnect, 2016), alternative reality products are currently in the 1<sup>st</sup> stage of technology market development, the hype cycle and as more of the technological challenges get solved, the alternative reality hardware has the potential to emerge as a mass consumer product in the future (DigiCapital, 2017). Virtual reality business is as topical as ever and the term is liberally thrown around in discussions. But what distinguishes virtual reality from its close relatives of augmented and mixed reality?

The current forms of **virtual reality** are mostly experienced via head-mounted-displays (Johnson, 2016) with the goal of absolute immersion and presence. Kazuhiro Takahara, the leading virtual reality engineer of the award-winning video game *Resident Evil 7: Biohazard*, was interviewed by Alan Bradley (2017) and explained that their goal was to get 'people to forget that they're wearing headphones and headset and get truly lost in the

illusion of being in another world'. Tim Merel (CasualConnect, 2016) estimates that the potential market for virtual reality will be in tens of millions of customers. **Augmented reality** differs from virtual reality by trying to offer utility over immersion (Johnson, 2016). The basic idea is to add virtual elements to your actual environment via augmented reality devices. While the augmented reality experience also requires a user to engage in the alternative reality via a wearable gadget, the products do not cover the full field of view of the user like the head-mounted-displays of virtual reality but rather comes in shapes such as wearable glasses presented by Magic Leap and their product Magic Leap One. It has been predicted that as mobile AR will develop from its current early stages, augmented reality has the potential to reach hundreds of millions of customers (DigiCapital, 2017). **Mixed reality** on the other hand attempts to provide flexibility by providing the best aspects of virtual and augmented reality in one product. As an example, mixed reality would allow a customer to interact with virtual reality objects in your regular environment. Mixed reality is experienced via a heavier wearable apparatus a lot like the head-mounted-displays of virtual reality but like with augmented reality gadgets, the products do not cover the whole field of view of the user, demonstrated by Microsoft and their product HoloLens. So, if the potential of augmented reality market is going to be in hundreds of millions of customers compared to tens of millions of customers of virtual reality market, why is it important to research this section of the alternative reality field?

Out of the three alternative reality markets I mentioned above, virtual reality market is currently the most developed and available to regular consumer markets (Tim Merel, CasualConnect, 2016). Merel (2016) also highlighted the importance of maintaining the awareness of the potential customers if the alternative reality market wants to reach its true potential. Judging the current development, virtual reality will be the one to fill these shoes. There are still questions and challenges that need to be solved to truly tap into the potential customerbase. Rubin (2014) brought up one of the most common headaches for the virtual reality developers by saying:

“In traditional videogame, too much latency is annoying – you push a button and by the time your action registers onscreen you’re already dead. But with virtual reality, it’s nauseating. If you turn your head and the image on the screen that’s inches from your eyes doesn’t adjust instantaneously, your visual system conflicts with your vestibular system, and you get sick.” (Rubin, 2014)

There's the reality that developers of VR don't only compete against each other but also against previous forms of entertainment, such as TVs, smartphones and tablets, that consume a considerable amount from a day of a consumer (DigiCapital, 2016). The level of immersion presented by a head-mounted-display won't allow a customer to "2<sup>nd</sup> screen" (doing more than one thing at once) like the other older gadgets do. It is clear from the numbers that investors believe in virtual reality and its ability to provide additional value over traditional gaming experience, but it remains to be seen how this additional value will actualize.

## **2.4 Conceptual Framework**

To conclude the literature review section of the thesis, a theoretical framework is introduced which will act as a guideline for the remainder of the research. The ideas presented in the framework are based on the concepts discussed in the earlier portions of the literature review with added elements from the author of the thesis to make it more fitting to the market of virtual reality gaming devices.

Figure 1. below is a visual presentation of the framework that was followed in designing the primary research portion of the thesis. It is an attempt of explaining how product adoption intention turns into either positive or negative decision regarding the adoption depending on the influencing factors that shape the opinion of a potential product adopter in relation to the value gained from the transaction. Outsider influence, company influence, and product attribute influence are suggested as the impactful elements that have the power to sway the opinion of the potential adopter in either direction. Following this framework, it allows the measurement of these factors in the primary research of the thesis.

**Figure 1. Conceptual Framework of adoption of virtual reality gaming devices**



### **3. METHODOLOGY**

Taking into consideration the time constraints and other factors, it was deemed that a meticulously created quantitative survey would be the best course of action to achieve the desired amount of data. A quantitative survey enables a swift data gathering process and allows a variety of opinions to be collected on the subject matter. The rather short and straight to the point nature of the survey was an intentional decision to incentivize people to complete it without sacrificing too much of their time.

It was clear from the beginning that the survey respondents should be divided into two distinct categories based on whether they already own a virtual reality gaming device or whether they have only considered purchasing one. This was decided under the assumption that the two categories might have differing opinions on the survey questions following the categorization. A third option of not owning a device and not being interested in obtaining one was included in order to eliminate the respondents that were interested in taking the survey but wouldn't be able to provide the desired data for the survey. Choosing this option would simply take the person to the end of the survey. The respondents were also asked to share how often they spend time playing video games weekly to see whether the gaming habits have any effect on the attitudes and opinions on the topic.

Regardless of which option the respondents chose regarding the possession of a virtual reality gaming device, they were directed to the next phase of the survey that asked comparable questions from both subgroups. Slight alterations to the questions asked were made depending whether the respondent owned a device or only had considered getting one in the future. They were then asked about which brand of virtual reality gaming devices they had purchased or were interested in obtaining and how much they paid or are willing to pay for them. Following these questions, the respondents were presented with a five-point likert-scale to uncover which attributes of the products and the marketing efforts of the companies producing the virtual reality gaming devices were most effective in influencing the purchase decisions or intentions of the customers.

**Table 1. Likert-scale for virtual reality gaming device purchase decision influencers**

	1. Not important at all	2.	3.	4.	5. Very important
Advertising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Familiarity of the brand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Endorsement of well-known personalities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Existing complementary products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information available in the company's website	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Newsletters of the company	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trialability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
User reviews	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Usefulness of the device to gaming experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The attributes for the likert-scale were selected based on the information presented in the literature review section of the thesis. This ensured that the attributes picked had theoretical thought behind them, even if the scholars don't necessarily agree on all the definitions and what they should include.

The survey continued with an inquiry of which elements of virtual reality gaming the respondents believed to add value to their gaming experience. They were also asked to share whether they participated in any online communities based around virtual reality gaming and whether they create their own virtual reality gaming themed content in these communities. This question enabled the possibility of unveiling the respondents that potentially act as influencers within their communities. The content creators were requested to tell whether they had participated in endorsing virtual reality gaming products to their followers or subscribers by companies and what they had received as compensation for the endorsement deal.

The survey was created using the online survey creation service Webropol. It was opened on 6<sup>th</sup> of March 2018 with the goal of receiving approximately hundred responses to have a data set worth analyzing. The survey was shared on the personal Facebook timeline of the author, on 6 different subcommunities focusing on virtual reality gaming devices on the social news aggregation website Reddit, on 2 official developer supported virtual reality gaming device discussion forums, on one 3<sup>rd</sup> party virtual reality enthusiast discussion board and on two separate gaming focused servers within the VoIP (Voice over Internet Protocol) application Discord. The aggressive distribution of the survey led to unexpected success in terms of responses, allowing the closure of the survey to happen already on the 8<sup>th</sup> of March 2018 with a total number of 472 submitted responses. The analysis of the data was conducted using IBM SPSS Statistics 25 analysis program, mostly focusing on the frequency analysis of the responses.

## 4. FINDINGS

This section of the thesis will be focusing on the results gathered from the quantitative survey designed for the purpose of answering the research questions. The section will start with a presentation of the demographics to learn about the attributes of the sample. It will then proceed to introduce the outcomes from the survey questions regarding the possession of virtual reality gaming devices and the attitudes of the respondents towards them. Finally, the section will conclude by looking into the participation of the respondents in online virtual reality gaming communities and whether some of the individuals that participated in the survey could be considered as influencers within their communities.

### 4.1. General Demographics

**Table 2. Age distribution**

	15 or younger	16-25	26-35	36-45	46-55	56 or older
Overall (n=472)	2,33%	26,27%	40,46%	23,30%	6,14%	1,48%

**Table 3. Gender distribution**

	Male	Female	Other	Not specified
Overall (n=472)	92,58%	5,51%	1,27%	0,64%

**Table 4. How often do you play video games weekly?**

	Less than once a week	1-3 times a week	4-6 times a week	Daily
Overall (n=472)	6,36%	24,15%	27,97%	41,52%



**Table 5. Where are you from?**

	Frequency	Percentage			
			Ireland	1	0,20 %
Antiqua and Barbuda	1	0,20 %	Italy	1	0,20 %
Argentina	1	0,20 %	Lithuania	1	0,20 %
Australia	12	2,50 %	Netherlands	9	1,90 %
Austria	1	0,20 %	New Zealand	6	1,30 %
Bahamas	1	0,20 %	Norway	3	0,60 %
Bahrain	1	0,20 %	Pakistan	1	0,20 %
Belgium	3	0,60 %	Poland	5	1,10 %
Brazil	2	0,40 %	Portugal	1	0,20 %
Canada	37	7,80 %	Romania	1	0,20 %
Chile	1	0,20 %	Russian Federation	1	0,20 %
Colombia	1	0,20 %	Slovakia	1	0,20 %
Denmark	3	0,60 %	South Africa	1	0,20 %
Estonia	4	0,80 %	Spain	3	0,60 %
Finland	38	8,10 %	Sweden	6	1,30 %
France	8	1,70 %	Switzerland	1	0,20 %
Germany	12	2,50 %	Taiwan	2	0,40 %
Greece	1	0,20 %	Turkey	2	0,40 %
India	2	0,40 %	Ukraine	1	0,20 %
Indonesia	1	0,20 %	United Kingdom	63	13,30 %
Iraq	1	0,20 %	United States of America	231	48,90 %
			<b>TOTAL</b>	<b>472</b>	<b>100 %</b>

As seen from table 2. above, a substantial portion of the respondents (40,46%) seem to fall in the age bracket of 26 to 35. Overall, the majority of the respondents appear to be between the ages of 16 and 45. From all the 472 people who participated in the survey, 92,58% were male, leaving the percentage of female respondents to 5,51%. The remaining 1,91% of the participators didn't identify themselves belonging to either of the two categories or didn't want to disclose their gender for the research. The measuring of the gaming habits of the respondents shows that the majority of the participators could be defined as "hardcore gamers", with 41,52% of the people claiming to play video games on daily basis and with 27,97% playing video games at least 4 to 6 times a week (Table 4). Table 5. is a representation of the nationalities that took part in the survey. Most of the responses recorded were from respondents residing in countries with English as their native language (70,00%), with United States of America having the majority representation of 48,90%. Overall, the survey managed to reach at least one person from each continent of the world.

**Table 6. Do you own a head-mounted virtual reality gaming device?**

	Yes	No, but I am considering purchasing one	No
Overall (n=472)	84,32%	6,56%	9,11%

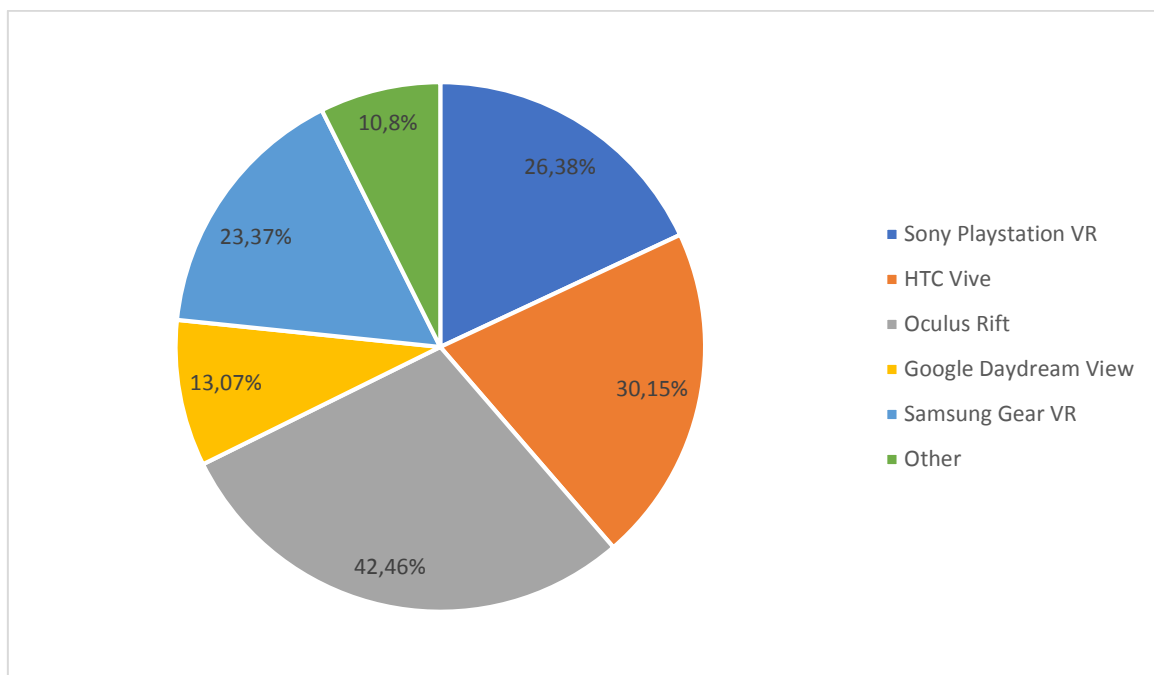
For the purpose of the research, it was beneficial to divide the respondents into two distinct categories to be able to compare the results between the groups to see if the perception of virtual reality gaming and the several factors influencing their purchase decisions or intentions substantially differed from each other. 84,32% of the respondents already possessed some type of a head-mounted virtual reality gaming device, leaving the comparison group of potential buyers to 6,56% (Table 6). The remaining 9,11% that didn't own a head-mounted virtual reality gaming device and weren't interested in acquiring one were forwarded to the end of the survey as their input wasn't needed for the purpose of the research.

#### 4.2. Survey questions for the respondents who already own a virtual reality gaming device

**Table 7. Which virtual reality gaming device(s) do you own?**

	Sony Playstation VR	HTC Vive	Oculus Rift	Google Daydream View	Samsung Gear VR	Other
Overall (n=398)	26,38%	30,15%	42,46%	13,07%	23,37%	10,80%

**Figure 2. Share of virtual reality gaming devices of current owners**



First question directed towards the people who already owned a head-mounted virtual reality gaming device was related to the specific brands of devices they own. Out of the 5 largest providers of head-mounted displays for virtual reality gaming, the respondents were asked to choose every type of device they currently own. 42,46% of the respondents were owners of Oculus Rift with HTC Vive following with a portion of 30,15%. Third place in terms of ownership belongs to Sony Playstation VR with a representation of 26,38%. The survey also allowed the respondents to share their devices that weren't included in the

list of options. Google’s cheap virtual reality alternative Cardboard appeared as a popular option among the respondents. Other popular devices included in the responses were Samsung Odyssey and various Windows Mixed Reality headsets from several different developers such as Acer, HP, Dell and Lenovo. One of the respondents had gone as far as creating their own head-mounted display from parts of other virtual reality gaming devices.

**Table 8. How much did you pay for the virtual reality gaming device (most recent purchase)?**

	Mean	Std. Deviation	Minimum	Maximum
Overall (n=396)	\$539,42	406,8891	\$0	\$3078

Out of all the participants who already owned a head-mounted virtual reality gaming device, the average price they paid for their device was \$539,42 with a standard deviation of 406,8891. A lot of the respondents told to have received their device as a gift, explaining the \$0 in the minimum price paid column in table 7. Among the respondents who purchased their own device, the minimum price landed to \$35. Highest reported price paid for the virtual reality gaming device stands at \$3078.

**Table 9. How important were the following factors in your virtual reality gaming device purchase decision?**

	1. Not important at all	2.	3.	4.	5. Very important	Total	Average
Advertising	56,28%	19,60%	16,84%	4,77%	2,51%	398	1,78
Availability	16,83%	13,57%	21,10%	23,12%	25,38%	398	3,27
Familiarity of the brand	14,07%	14,07%	19,10%	30,90%	21,86%	398	3,32
Ease of use	6,03%	12,31%	19,85%	32,16%	29,65%	398	3,67
Endorsement of well-known personalities	74,12%	12,81%	7,54%	3,27%	2,26%	398	1,47
Existing complementary products	23,12%	18,09%	23,87%	20,10%	14,82%	398	2,85
Information available in the company's website	17,84%	19,85%	20,85%	21,36%	20,10%	398	3,06
Newsletters of the company	70,10%	17,84%	9,80%	1,76%	0,50%	398	1,45
Price	7,54%	6,78%	17,84%	28,39%	39,45%	398	3,85
Trialability	33,67%	22,11%	20,6%	11,56%	12,06%	398	2,46
User reviews	8,29%	4,52%	14,07%	34,68%	38,44%	398	3,90
Usefulness of the device to gaming experience	2,01%	1,76%	8,29%	22,11%	65,83%	398	4,48
Total	26,62%	13,61%	17,80%	19,52%	23,57%	4776	2,96

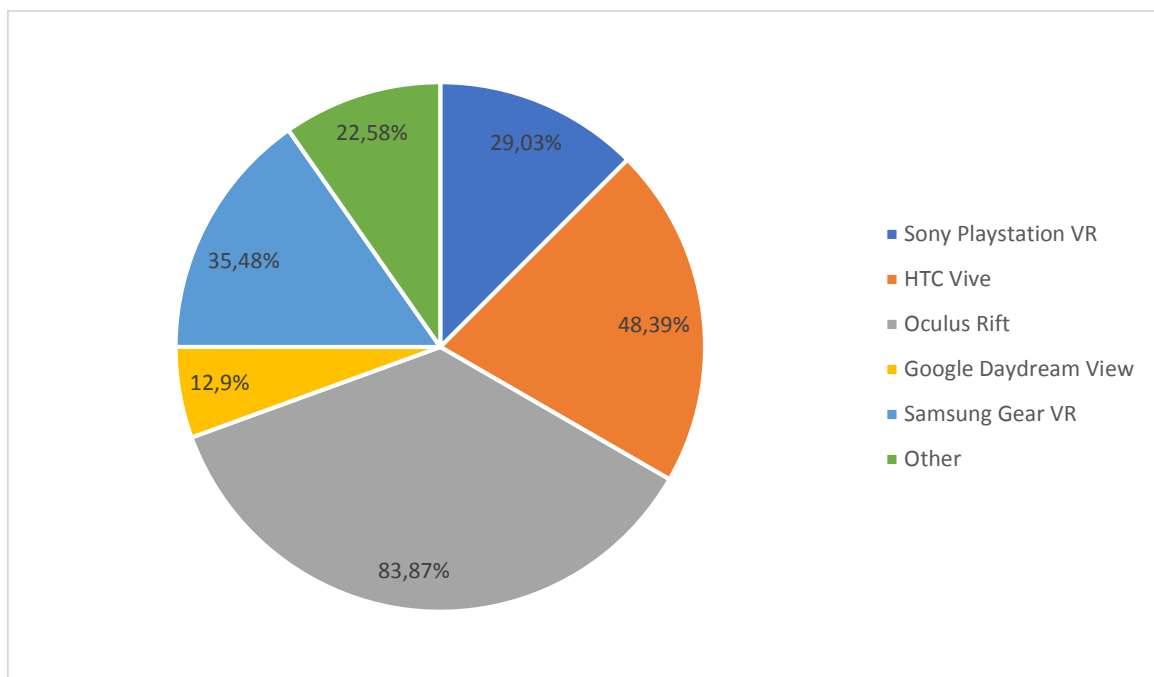
Question 8 of the survey focused on the elements that influenced the purchase decisions of the respondents. Judging the average scores of the responses to the likert-scale, the most crucial factors influencing the purchase decision were “Usefulness of the device to gaming experience” with an average score 4,48 and “User reviews” from other users with an average score of 3,90. While the average scores of price (3,85) and ease of use” (3,67) were in the upper echelon of influencing factors, they weren’t deemed as important. According to the respondents, the effectiveness of product related newsletters from the companies was rated low (1,45) along with the endorsement efforts of well-known personalities (1,47).

### 4.3. Survey questions for the respondents who are considering purchasing a virtual reality gaming device

**Table 10. Which virtual reality gaming device(s) have you considered purchasing?**

	Sony Playstation VR	HTC Vive	Oculus Rift	Google Daydream View	Samsung Gear VR	Other
Overall (n=31)	29,03%	48,39%	83,87%	12,90%	35,48%	22,58%

**Figure 3. Share of virtual reality gaming devices of potential buyers**



First question directed towards the people who were or had considered purchasing a head-mounted virtual reality gaming device was related to the specific brands of the devices they would like to obtain, much like for the current owners of virtual reality gaming devices. The potential buyers were also asked to tick down every type of device from the 5 largest providers to reveal their preferences. The popularity of Oculus Rift was also seen in the responses of the answers of this group, reaching an enormous percentage of 83,87% among the choices of the sample. Similarly, the trend continued with HTC Vive being one

of the most popular options for 48,39% of the survey takers. Instead of Sony Playstation VR (29,03%) being the third popular option like among the current owners of virtual reality gaming devices, Samsung Gear VR surpassed it with the percentage of 35,48%. Respondents that couldn't find their preferred option from the 5 largest providers seemed to be favoring different versions of Windows Mixed Reality from various providers. Oculus Go was also mentioned several times among the respondents.

**Table 11. How much do you expect to pay for the virtual reality gaming device you are considering purchasing?**

	Mean	Std. Deviation	Minimum	Maximum
Overall (n=31)	\$401,90	160,5707	\$100,00	\$700,00

Out of all the participants who were or had considered purchasing a head-mounted virtual reality gaming device, the average price they would be willing to pay for obtaining one landed at \$401,90 with a standard deviation of 160,5707. The lowest price that a person would be willing to pay for their virtual reality gaming device among the potential buyers stands at \$100,00. This value is considerably lower than the highest price that someone among the potential buyers was willing to pay (\$700,00).

**Table 12. How important are the following factors to you when considering purchasing a virtual reality gaming device?**

	1. Not important at all	2.	3.	4.	5. Very important	Total	Average
Advertising	41,94%	29,03%	19,35%	9,68%	0%	31	1,97
Availability	6,45%	16,13%	22,58%	38,71%	16,13%	31	3,42
Familiarity of the brand	22,58%	9,68%	22,58%	38,71%	6,45%	31	2,97
Ease of use	9,68%	0%	25,80%	25,81%	38,71%	31	3,84
Endorsement of well-known personalities	54,84%	22,58%	19,35%	3,23%	0%	31	1,71
Existing complementary products	3,22%	3,23%	32,26%	32,26%	29,03%	31	3,81
Information available in the company's website	3,23%	6,45%	12,90%	29,03%	48,39%	31	4,13
Newsletters of the company	64,52%	29,03%	6,45%	0%	0%	31	1,42
Price	0%	3,23%	29,03%	16,13%	51,61%	31	4,16
Triability	16,13%	6,45%	9,68%	41,93%	25,81%	31	3,55
User reviews	3,22%	3,23%	0%	25,81%	67,74%	31	4,52
Usefulness of the device to gaming experience	0%	3,23%	0%	19,35%	77,42%	31	4,71
Total	18,82%	11,02%	16,67%	23,39%	30,11%	372	3.35

Like for the respondents who already own a virtual reality gaming device, the potential buyers were also presented with an identical likert-scale that asked them to rate the importance of the different influences that led them into considering the purchase of the device of their choice. Like among the current owners of virtual reality gaming devices, usefulness of the device to gaming experience and user reviews appeared as the most influential elements when it comes to purchase intentions of virtual reality gaming devices, scoring 4,71 and 4,52 respectively on average. Price averaged a score of 4,16, being the 3<sup>rd</sup> most crucial factor. Instead of ease of use (3,84), the potential buyers seemed to value the information available in the websites of the device providers (4,13) higher than the current owners of the devices (3,06).



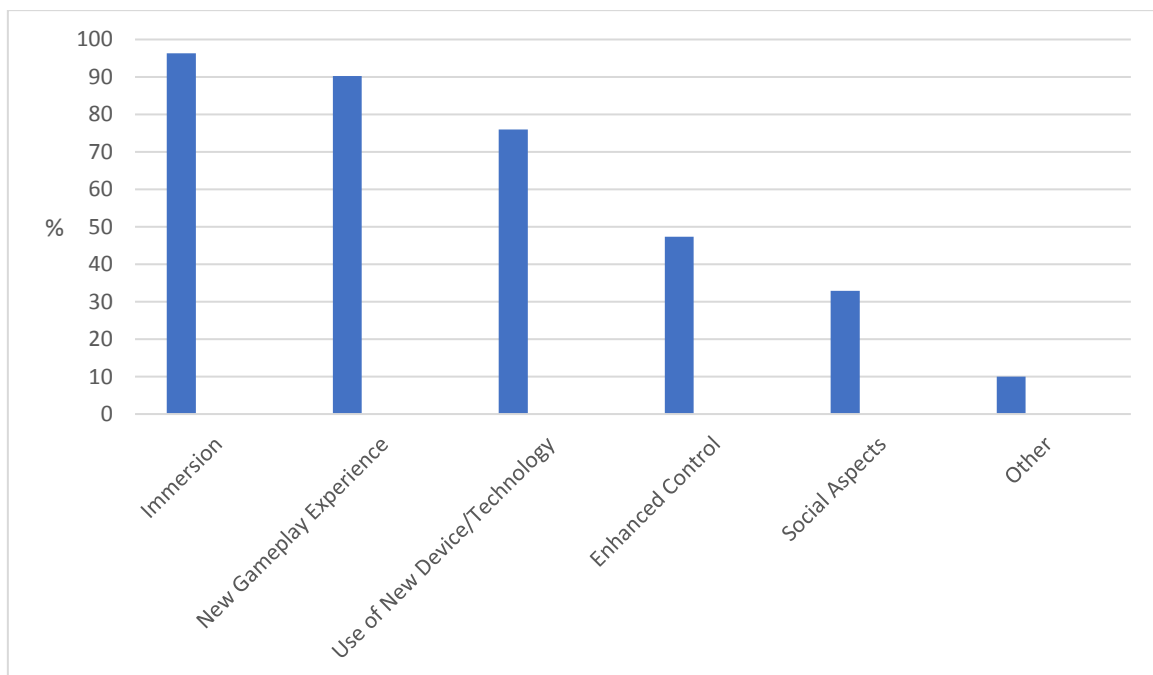
#### 4.4. Additional value to gaming experience & participation in VR online communities

This section of the survey findings gathered responses from both the current owners of virtual reality gaming devices and people who have considered purchasing one. The division to two distinct groups wasn't deemed necessary for the following questions and it is beneficial to gather the opinions of all the participators whose input is relevant for the purpose of the thesis

**Table 13. What does virtual reality gaming add to your gaming experience?**

	Immersion	Enhanced Control	New Gameplay Experience	Social Aspects	Use of New Device/Technology	Other
Overall (n=429)	96,27%	47,32%	90,21%	32,87%	75,99%	10,02%

**Figure 4. Added value of virtual reality gaming experience**



Question 12 of the online survey conducted attempted to unveil the opinions of the respondents regarding the value that virtual reality gaming adds to the gaming experience on top of the perceived value a person gains from gaming without the added virtual reality element. The options included in the survey question were based on the discussions the author had with his thesis supervisor and his close acquaintances regarding what could be included in the list. The respondents were also given a choice of listing things not included in the initial list.

As expected, the immersion value of virtual reality gaming scored very highly among the participants with 96,27% including the option in their answer. New gameplay experience (90,21%) and use of new device (75,99%) were the next highest scoring options from the list with enhanced control (47,32%) and social aspects (32,87%) being the least important value bringers. Other aspects disclosed by the respondents included activities such as physical exercising, overcoming social anxieties in multiplayer virtual reality games, usefulness of virtual reality in work related instances credited to more intuitive interfaces and increasing overall happiness and enjoyment in social gatherings. Some wanted to hone their virtual reality gaming skills as an early adopter of the technology as they believe that the future of gaming lies in virtual reality. Overall, the users felt that the possibility of transforming the games into experiences instead of just games was fulfilling and the fact that one can experience new locations without having to physically travel makes it exciting. These aspects heavily relate to the high scoring immersion received from the question.

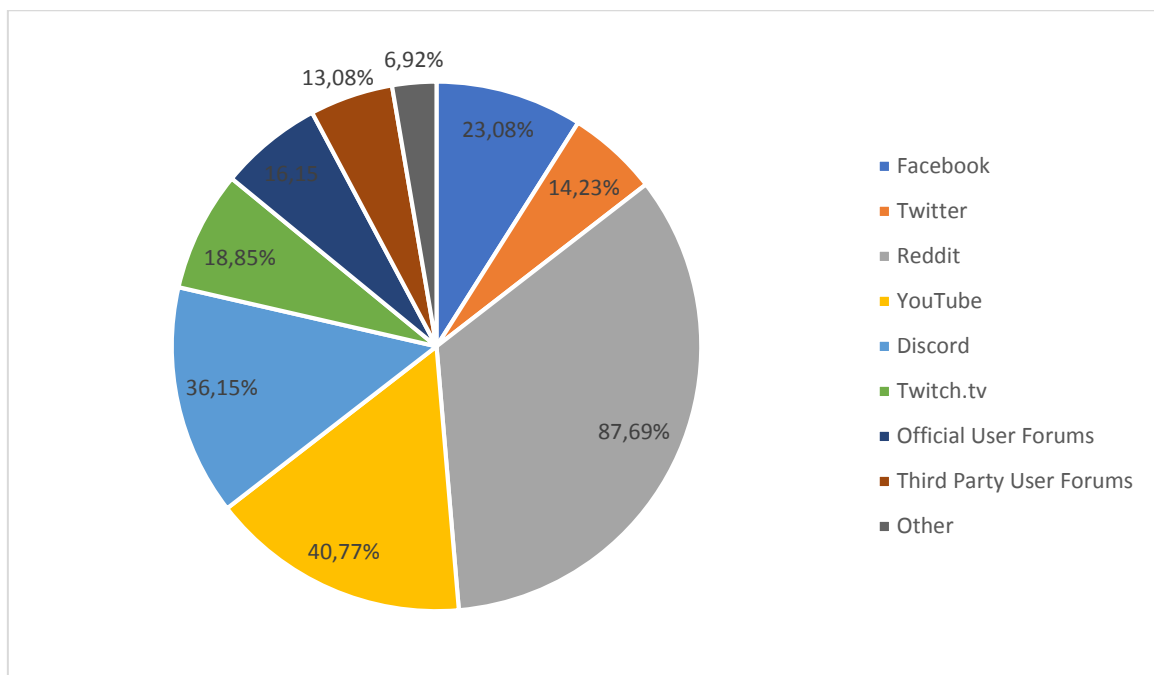
**Table 14. Do you participate in virtual reality gaming online communities?**

	Yes	No
Overall (n=429)	60,37%	39,63%

**Table 15. What kind of virtual reality gaming online communities do you participate in?**

	Facebook	Twitter	Reddit	YouTube	Discord	Twitch.tv	Official User Forums	Third Party User Forums	Other
Overall (n=259)	23,08%	14,23%	87,69%	40,77%	36,15%	18,85%	16,15%	13,08%	6,92%

**Figure 5. Share of different virtual reality gaming online communities**



The last four questions of the online survey were designed for the purpose of finding the respondents that participate in virtual reality gaming related online communities in any shape or form. Therefore, it was necessary to split the remaining respondents to identify those whose input would be worthwhile for the remaining questions of the survey. Those

who don't participate in any virtual reality gaming related online communities (170 respondents) were directed to the end of the survey.

After the division, the people participating in virtual reality gaming related online communities (259 respondents) were asked to reveal all the online communities they participate in. The question presented the respondents with 8 different generic options that the author thought would be most popular among the sample. Majority of the respondents were participators in separate subcommunities of the website Reddit (87,69%). YouTube (40,77%) and Discord (36,15%) appeared as the 2<sup>nd</sup> and 3<sup>rd</sup> most popular locations of virtual reality gaming communities with over third of the remaining respondents being part of them. The share of people participating into official and 3<sup>rd</sup> party user discussion forums appeared to be rather low with only 29,23% of the participants having them as the community of their choice.

Participants were also asked to share their virtual reality gaming related online communities that weren't mentioned in the list of general options. Different communities within virtual reality games themselves such as VRChat and RecRoom appeared several times in the answers. Steam, a digital distribution platform by Valve, was also mentioned several times with its numerous message boards and gaming communities.

**Table 16. Do you create virtual reality gaming related content?**

	Yes	No
Overall (n=252)	25,79%	74,21%

The overall number of respondents for the question regarding creating virtual reality gaming related content is lower due to some of the given 8 communities not including a follower/subscriber system for their content creators. Despite this, only one fourth of the participators of virtual reality gaming online communities actively created unique content for their communities. The content creators were also given an option to share their follower/subscriber count with the goal of retrieving more information about the potential influencer status of theirs. This question wasn't a requirement for the completion of the survey due to the possibility contractual or personal factors not allowing the participants to share the number. The follower/subscriber bases of the respondents varied massively,

being as small as 0 to 80 to the biggest one being around 1,5 million subscribers. Overall, the vagueness of the question made it difficult for some of the respondents to define what counts as a subscriber/follower for their content which resulted in some ambiguous answers.

**Table 17. Have you participated in endorsing a virtual reality gaming device by a company's request?**

	Yes	No
Overall (n=69)	7,25%	92,75%

The content creators of virtual reality online communities were asked if companies had approached them with any kind of request to endorse their virtual reality gaming devices to their followers/subscribers. Surprisingly, only a tiny portion of the content creators (7,25%) had been approached with an endorsement deal.

The content creators participating in product endorsement were given an option to tell what they received as compensation from the deal. As expected, the compensations varied from simple monetary compensations to receiving free video games and a free copy of the product they were endorsing. None of the respondents were able to disclose exact amounts they received from the endorsement deals.

## 5. DISCUSSION AND ANALYSIS

This section of the thesis is reserved for the thorough discussion and analysis of the online survey conducted. It will be following the same structure as the previous section, starting from an overview of the demographics of the sample, continuing with a comparison of the results between the groups of current owners and potential buyers of virtual reality gaming devices and the analysis of why the results differed from each other. The section ends with an inquiry of the participation of the respondents in virtual reality gaming related online communities and a potential explanation of the observed results received from the survey.

As seen from the findings, it can be summarized that a sizable portion of the survey participants were young adult males that could be considered “hardcore gamers”, with considerable portion playing video games at least 4 to 6 times a week and majority enjoying them daily. Almost half of the respondents were from the United States of America and already owned some sort of head-mounted virtual reality gaming device. These results could be an indication of higher interest of virtual reality gaming or video games in general among the male gender or of the gender distribution of the communities the survey was shared in. The survey was shared most aggressively in different virtual reality gaming related subcommunities of the website Reddit which is based on USA. Therefore, it could be an explanation of the highest participation percentage from the United States of America. The choices regarding the distribution locations of the survey most likely also relate to the high percentage of people already owning a head-mounted virtual reality gaming device as the discussions occurring in these locations mostly focus on conversations between current owners.

Both the current owners and potential buyers of virtual reality gaming devices seemed to have the same preference of devices with Oculus Rift and HTC Vive scoring the highest among the participants. This could be due to several factors. The highest score of Oculus Rift may be a result of the device being one of the first modern day virtual reality gaming headsets in the market, gaining a lot of coverage in the media all over the world. There might also be a direct correlation to the response rates from the different virtual reality gaming device communities with Oculus and HTC Vive subcommunities of Reddit being the most active participators to the survey. The results could also mean that the respondents simply perceive these devices to be of higher quality than the other options

currently in the market. From the devices not included in the list of the survey, Windows Mixed Reality devices from different companies were frequently mentioned by the participants. This is a great reminder that the survey takers should have been made aware of the differences between various alternative realities and why virtual reality was chosen as the focus for the research. The cheap virtual reality alternative of Google Cardboard was mentioned several times among the owners while none of the potential buyers showed interest towards the product. This could be explained with the differences between early adopters and later adopters. The interest of early adopters towards virtual reality experience is more than likely higher than of the people who are still in the process of obtaining one. Google Cardboard is an affordable alternative for virtual reality experience for a person that just wants to obtain the experience while later adopters most likely have stricter demands in terms of the device they're planning to obtain. Other differences between the groups in terms of devices mentioned could be credited to companies entering the market with their new devices.

Current owners of virtual reality gaming devices paid \$137,52 more for their device on average than what the potential buyers are expecting and willing to pay for theirs. This also relates to how early adopters tend to operate when it comes to obtaining a new product or service. An early adopter tends to be more interested in obtaining the product or service and is not as price conscious as they tend to value the new experience over the potential monetary loss. On the other hand, it could simply be a reflection of pricing changes in the market as the devices have become more common and companies aren't as capable of charging premium for their devices as they no longer are one of the few actors in the market.

Both current owners and potential buyers rated user reviews and the usefulness of the device to gaming experience as the biggest influencing factors regarding their purchase decision or consideration. The usefulness to gaming experience being one of the highest rated elements is rather self-explanatory as the survey itself was directed at people using virtual reality for gaming purposes. The high rating of user reviews might be due to the respondents perceiving the experiences of their peers to be more valid and truthful about all the aspects of the devices compared to the information provided by the companies who gain nothing from highlighting the potential negative features of their device or endorsement of well-known personalities who are paid to persuade their followers in

obtaining the device. Leading edge users are also considered as big influencers when it comes to product adoption. While the price element scored fairly high among both groups, it was rated higher on average among the potential buyers. This relates to the same explanations about the tendencies of early adopters compared to later adopters already discussed in the paragraph discussing the pricing. The higher scoring of website information among the potential buyers most likely relates to being able to make comparisons between the specifications of the products they have considered obtaining.

According to the respondents, the immersion provided by virtual reality gaming is by far the biggest value adding element on top of the traditional gaming experience. This makes sense as it is often the most marketed and sought-after feature of these products. Overall, the value adding elements the participants listed for the survey question can be compiled into 3 separate categories. People felt that virtual reality gaming provided additional physical and mental health related value, allowing them to exercise and overcome existing social anxieties in a stress-free environment. They identified the added social value of virtual reality gaming, increasing the overall happiness and enjoyment in gatherings among friends. The experiential value of virtual reality relates to the immersion element of virtual reality gaming, allowing the users to transform gaming into an experience that doesn't feel like gaming.

The massive popularity of Reddit as a virtual reality gaming online community can be explained in two ways. The design of the website and the user-friendly interfaces are made for fostering communities with similar interests. On the other hand, it wasn't surprising to see Reddit as the option receiving the biggest supporting as it was the platform that was used the most in distributing the survey. This was due to the highest chance of receiving impressions for the survey with the effort required for it. The combined number of 351,792 followers among the subcommunities the survey was distributed to made it very probable that it would end up being the most popular online community for the survey. Discord has risen among the ranks of online community platforms due to its features of allowing both text and voice communication within the communities. The decline of traditional user forums could be due to the user interfaces and overall usability of them being outdated compared to their counterparts.



From the members of virtual reality gaming online communities who created their own virtual reality gaming content, only a tiny fraction (7,25%) had participated in endorsing a virtual reality gaming device by a request of a company. This is either due to the participators not being recognized as effective influencers by the companies or companies not considering content creator endorsement as an effective method of gaining customers. Either way, this seems to resonate with the earlier data gathered of the influencing factors regarding the purchase decisions or considerations of virtual reality gaming devices where both groups rated the effect of endorsement as one of the lowest influencers.

## **6. CONCLUSIONS**

In this section of the thesis, the main findings of the survey will be concluded. These findings will be used as a reference to explain the implications of the research for international business. The section continues by acknowledging the limitations to the study conducted and suggests areas of improvement in the future research regarding the topic of attitudes towards virtual reality gaming and products.

### **6.1. Main Findings**

To reflect on the findings of the survey, the section will go through each of the research questions set in the beginning of the thesis and tries to provide answers to them.

The survey investigated the elements of virtual reality gaming to find out what the current and potential future owners of virtual reality gaming devices perceived as value adding on top of the traditional gaming experience. As already mentioned in the literature review, the product attributes of price, utility, quality and satisfaction tends to equate with consumer value depending how much importance a customer gives to a certain trait of the product. (Zeithaml, 1997; Sánchez-Fernández & Iniesta-Bonillo, 2006; Lindić & Marques da Silva, 2011). After the analysis of the survey results, it can be concluded that the respondents found the utility and satisfaction as the most value adding factors of virtual reality gaming. The health, social and experiment groups of value discussed in the survey findings section of the thesis can all be linked to these factors.

The survey also investigated the biggest influencing elements affecting the purchase decisions of the respondents to determine how companies should allocate their limited resources to effectively persuade their potential customers. The high average score of user reviews can be linked to already mentioned aspect of product adoption in the literature review. Under the assumption that these innovators participate in the communities that are potentially interested in adopting a new product, they may act as opinion leaders and therefore can have a direct influence in the future decisions of customers (Midgley et al., 2000). However, while Cenamor et al. (2013) argued for the importance of consistent in-house complementary product portfolio in increasing the confidence of potential customers for product adoption, the survey participators didn't identify with the sentiment as firmly.

Essentially, it can be said that the market of virtual reality gaming devices seems to mostly operate under the same conditions already identified in earlier academic research. Judging the survey results, emphasizing the importance of leading edge users and early adopters as opinion leaders for the potential customers seems to be the way forward.

## **6.2. Implications for International Business**

DigiCapital (2016) predicts that the combined revenue collected from the virtual and augmented reality markets will reach 120 billion dollars globally by the end of 2020. The sheer enormous potential of the virtual reality gaming should be a valid reason itself for innovative designers to search for an entry to the market. According to Tim Merel (CasualConnect, 2016), the alternative reality devices have the potential to emerge as mass consumer devices once the market progresses from the hype cycle towards the later stages of technology market development as more technological challenges get solved. Additionally, the market isn't only limited to simple hardware sales of devices. The demand for B2B solutions, eCommerce sales, In-app purchases and similar aspects demonstrates that the market potential is tangible to wide array of professionals.

### **6.3. Limitations to the Study**

As already mentioned in the literature review section of this thesis, the fact that there is no universal consensus on the definition of customer value and what it should entail (Sánchez-Fernández & Iniesta-Bonillo, 2006: 52; Zeithaml 1997) makes it rather challenging to reach a conclusion on whether the knowledge obtained from the survey results can be used as a generalization for other customer value related topics. The way an individual comprehends value gained from a transaction and from the use of a product or service may differ greatly from person to person which further complicates the process of studying customer value.

In the survey, the respondents were asked to provide information of how much they paid or were willing to pay for a virtual reality gaming device. While the information is valuable and may prove to be useful as a guideline towards pricing of virtual reality gaming products, it doesn't consider the relationship between the price and the purchasing power of individuals from various parts of the world. For example, a virtual reality gaming device of \$200 could be a totally reasonable price for someone when it could be the salary of a whole month for someone else.

Due to the short structure of the survey, the chosen aspects of virtual reality gaming investigated were chosen on the basis of including the most important elements under the magnifying glass. Therefore, the survey isn't a fully comprehensive analysis of all the matters that could have been investigated regarding the subject. Also, the fact that no published academic research on the topic was found during the secondary research in the context of virtual reality gaming market made singling out the most important components somewhat demanding.

The survey included a question of whether the respondent was a content creator within their online virtual reality gaming communities and asked to disclose their follower/subscriber count with the goal of learning if they could be counted as an influencer or not. However, the everchanging nature of what number of followers/subscribers counts a person as an influencer can be troublesome. The effectiveness of the messages of a more interactive influencer with a smaller follower base can also, in some cases, be considerably higher than of an influencer with an enormous following and number of

impressions per message that isn't able to connect with their followers/subscribers on such a personal level.

Finally, the fact that almost half of the respondents (48,90%) were from the United States of America sets an unavoidable bias for the results of the survey which could imply that the survey findings cannot be directly implemented in other parts of the world.

#### **6.4. Suggestions for Further Research**

This thesis focused solely on the virtual reality gaming and products aspect of the alternative reality market. Similar research questions could also be investigated in the markets of augmented and mixed reality to see whether they significantly differ from each other. The scope of the research could also be widened to examine the other segments of alternative reality business to actualize the existing potential of them. It would also be interesting to see whether the opinions of the potential buyers of virtual reality gaming hardware change when the market matures and transitions from the hype cycle stage to sustainable market in the technology market development cycle model.

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## APPENDICES

### Appendix 1. The online survey for the current and potential owners of virtual reality gaming devices

#### Page 1 – General Demographics

### Survey on Virtual Reality Gaming Attitudes and Products

This survey was designed as part of a student thesis at Aalto University. The purpose is to explore the attitudes towards virtual reality gaming and related products.

**Please continue to the survey if you have played a video game within the last month.**

The answers to this survey will remain confidential and will only be used for the purpose of the thesis research.

The survey should take around 5 minutes to complete.

If you have any concerns, you can contact the researcher at [orson9th@gmail.com](mailto:orson9th@gmail.com) or the thesis supervisor at [altobello.research@gmail.com](mailto:altobello.research@gmail.com)

#### 1. How old are you? \*

3 characters left

#### 2. What is your gender? \*

- Male
- Female
- Other
- Don't want to specify

#### 3. Where are you from? \*



## Survey on Virtual Reality Gaming Attitudes and Products

**4. How often do you play video games weekly? \***

- Less than once a week
- 1-3 times a week
- 4-6 times a week
- Daily

**5. Do you own a head-mounted virtual reality gaming device? \***

- Yes
- No, but I am considering purchasing one
- No

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## Survey on Virtual Reality Gaming Attitudes and Products

**6. Which VR gaming device(s) do you own? (Choose all that apply) \***

- Sony Playstation VR
- HTC Vive
- Oculus Rift
- Google Daydream View
- Samsung Gear VR
- Other (please specify)

**7. How much did you pay for the VR gaming device you currently own and use (most recent purchase)? \***

Please use currency symbol (e.g., \$100)

**8. How important were the following factors in your VR gaming device purchase decision? \***

	1. Not important at all	2.	3.	4.	5. Very Important
Advertising	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Familiarity of the brand	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of use	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Endorsement of well-known personalities	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Existing complementary products	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information available in the company's website	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Newsletters of the company	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Price	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trialability	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
User reviews	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Usefulness of the device to gaming experience	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Survey on Virtual Reality Gaming Attitudes and Products

**9. Which VR gaming device(s) have you considered purchasing? (Choose all that apply) \***

- Sony Playstation VR
- HTC Vive
- Oculus Rift
- Google Daydream View
- Samsung Gear VR
- Other (please specify)

**10. How much do you expect to pay for the VR gaming device you are considering purchasing? \***

Please use currency symbol (e.g., \$100)

**11. How important are the following factors to you when considering purchasing a VR gaming device? \***

	1. Not important at all	2.	3.	4.	5. Very important
Advertising	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Familiarity of the brand	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of use	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Endorsement of well-known personalities	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Existing complementary products	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information available in the company's website	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Newsletters of the company	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Price	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trialability	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
User reviews	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Usefulness of the device to gaming experience	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Survey on Virtual Reality Gaming Attitudes and Products

12. What does virtual reality gaming add to your gaming experience? (Choose all that apply) \*

- Immersion
- Enhanced Control
- New Gameplay Experience
- Social aspects
- Use of New Device/Technology
- Other (please specify)

13. Do you participate in VR gaming online communities? \*

- Yes
- No

### Survey on Virtual Reality Gaming Attitudes and Products

14. What kind of VR gaming online communities do you participate in? (Choose all that apply) \*

- Facebook
- Twitter
- Reddit
- YouTube
- Discord
- Twitch.tv
- Official User Forums
- Third Party User Forums
- Other (please specify)

## Survey on Virtual Reality Gaming Attitudes and Products

15. Do you create VR gaming related content? \*

- Yes
- No

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## Survey on Virtual Reality Gaming Attitudes and Products

16. How many followers/subscribers do you have?

17. Have you participated in endorsing a VR gaming device by a company's request? \*

- Yes
- No

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## Survey on Virtual Reality Gaming Attitudes and Products

18. What did you receive from the endorsement deal with the company?

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## Survey on Virtual Reality Gaming Attitudes and Products

19. How did you hear about this survey? (Choose all that apply) \*

- Facebook
- Twitter
- Reddit
- YouTube
- Discord
- Twitch.tv
- Official User Forums
- Third Party User Forums
- A friend/colleague
- Other (please specify)

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