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TOURIST EXPERIENCE MOVES FORWARD THROUGH VIRTUAL REALITY

A Case Study of Dialysis Patients towards Virtual Travelling

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Master Thesis

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Abstract

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Virtual Reality experiences have been the subject of study during the last years. New and existing applications for virtual reality have emerged in sectors such as tourism and healthcare. The aim of this study is to determine perception of dialysis patients regarding their interaction with virtual environments while providing an immersive touristic experience without leaving their room. Hence, the case study highlights a new possible interconnection between healthcare and tourism areas applying Virtual Reality technology. Primary data collection was performed through a multimethod approach. Interviews combined with the theoretical framework became the basis to design the final questionnaire. Fifteen participants were interviewed and twelve of them were interested in trying the virtual reality experience. Findings show that the sense of presence perceived leaded participants' mind to be transported inside of the storytelling. This fact stimulated the achievement of an escapism feeling from their surroundings. Additionally, the study interrelates the predisposition of the person with the level of presence reached. When the experience shown is meaningful for the participants and related to their interests and desires, this reinforces the acceptance of the new reality allowing the participant to feel in another place. This fact induces participants to take away their thoughts and engage their emotional state of mind feeling more a tourist rather than a patient. This research contributes to an understanding of how Virtual Reality may affect the conception of a tourist experience. The implication of sense of presence might provide an opportunity to people with disabilities to achieve their tourist desires by encapsulating the notion of time-space through a less physical dimension.

Keywords: tourist experience; sense of presence; virtual reality; dialysis patients; qualitative research; information and communication technologies; experience co-creation.

Pentru familia mea

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For the last two years I have lived in five different countries aiming to understand the essence of each culture through their traditions, language, and people's behaviour. I was digging into the concept of Tourism and Travelling from multiple perspectives doing research inside of its essence. For some people, tourism is a way of living. For others is a "tool" to escape. For me is my medicine to feel alive.

The last six months I had the privilege to combine my social background to enhance travelling opportunities from a less physical way. It is hard to explain an innovation when still does not exist but is even harder if you do not try.

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1. INTRODUCTION

Research on the topic of Tourism Experience focusing on Virtual Reality (VR) still remains in its early stage. New and existing applications for Virtual Reality have emerged in sectors such as tourism and healthcare. Current studies acknowledge the value of this technology and suggest that Virtual Reality (VR) and its applications will change the management of tourism sector (Guttentag, 2010; Loizides, El Kater, Terlikas, Lanitis, & Michael, 2014; Ma, Jain, & Anderson, 2014). In line with this approach, new questions are raised such as how to face the inclusion of these applications or what are the benefits and consequences in the tourism field.

This research presents a case study aiming to evaluate how enabling the sense of presence through Virtual Reality Technology may provide a key to achieving a tourist experience. The aim of this study is to determine perception of dialysis patients regarding their interaction with virtual environments through providing an immersive touristic experience without leaving their room. Hence, the case study highlights a new possible interconnection between healthcare and tourism areas applying Virtual Reality Technology.

Virtual Reality is a powerful technology that has become popular gaining the attention of researchers and professionals in the tourism area. Many definitions are being proposed (Gigante, 1993; Mihelj, Novak, & Beguš, 2014; Steuer, 1992; Zeltzer, 1992) to define the term Virtual Reality (VR) technology. To date, Virtual Reality is considered a composition of an interactive computer simulation, which senses the user's state and operation and replaces or augments sensory feedback information to one or more senses in a way that the users get a sense of being immersed in the simulation or virtual environment (Mihelj et al., 2014).

A current and specific example that reflects the influence of Virtual Reality in the tourism sector is the app Dreams of O, designed by Felix & Paul Studios. This application is a perfect example which combines the use of this technology aiming to promote Cirque du Soleil as well as to make people experiencing the touristic attraction through Samsung's Gear VR headset. Thus, Virtual Reality has become a marketing tool but also another channel to experience Cirque du Soleil (Felix & Paul Studios, 2017).

There are other examples which can be done with Virtual Reality that may affect the experience of tourism. Due to the emerging state of this phenomenon only limited research has so far examined the effect of Virtual Reality regarding tourism experience.

It is not yet clear which Virtual Reality applications may have a positive impact on the tourism sector. However, this poses a potential problem and thereby allows us to go a step forward considering a

number of possibilities. To answer this broad question, it will be highly significant for different areas composing tourism sector, such as the customer experience, designing experiences, planning and management tool, heritage preservation solution or the development of marketing and promotional strategies. Hence, more research is necessary in this field.

While some of the research is focused on analysing possible types of applications and usages that Virtual Reality may offer in fields such as communication, healthcare, or tourism (Guttentag, 2010; Loizides et al., 2014; Ma et al., 2014), the current thesis has chosen an explicit functionality concentrating on the use of Virtual Reality to provide an opportunity for disable people to visit distant places without leaving their room (Pease, Cooper, & Tosheff, 2007).

The current thesis focuses on travellers with disabilities. Particularly, this investigation is based on an examination of dialysis patients, a target group who is facing significant barriers to reach a memorable tourist experience. These are patients suffering from end stage kidney disease (ESKD) and using a hospital treatment technique of cleaning the blood three times per week, four hours per day approximately. Due to their condition, the planning trip procedure involves certain challenges influencing the decisions-making process of the travelling experience. Consequently, variables such as geographical proximity or availability of treatment facilities become the main conditions of travelling to a destination. It could have been explored the perception of other type of patients who are also facing challenges during their tourism participation but based on the researcher's previous knowledge and the professional expertise and collaboration of dialysis department in Máxima Medisch Centrum (Veldhoven), dialysis participants became the most appropriate group to concentrate the investigation.

Therefore, the research is divided into two fields for its better organisation and comprehension. One of them is related to tourism and the other one is focused on Virtual Reality technology. To accomplish the correct development of the case study, the researcher provides a theoretical framework based on an overview analysis of both sides, tourist and Virtual Reality experience. The variables constituting a tourism experience such as situational factors, physical experience, human interaction, and individual character will be reviewed. On the other hand, factors influencing the sense of presence will also be considered. The purpose is to consider these theoretical elements to elaborate one model which can illustrate the possible experience by combining both tourist experience and sense of the presence through Virtual Reality.

1.1 Problem Statement and Introduction of the case study

The rational of this study is taken from the need of examining the possibility of achieving tourist experience by enabling the sense of presence through Virtual Reality. The research contributes to the gap by focusing on travellers with disabilities. Specifically, patients with dialysis who are facing tourism restrictions due to their treatment routine. These circumstances require the management of a chain coordination (Selst, 2017, p. 59) to make the tourist experience possible.

The uniqueness of the research relies on its capacity to provide a better understanding of the possibility to achieve tourist experience in an alternative way; by enabling sense of presence through Virtual Reality. The intention is to consider the capacity of Virtual Reality contributing to the co-creation of tourist experience. In this way, the investigation sets out to explore a different path to facilitate the enjoyment of a tourist experience inside of a less physical dimension. The research takes into account the needs of people who experience mobility restrictions by opening another dimension to stimulate their tourist participation.

Based on these circumstances, the idea opens a new branch regarding the current notion of tourist. Additionally, the research suggests a fresh discussion proposing a new paradigm to experience tourism based on the sense of presence through Virtual Reality.

Thereby, the exploratory research into diayais tourist perception in the use of Virtual Reality to accomplish a tourist experience, has scientific relevance in studying a recent topic in the area of tourism literature (see theoretical framework for further information). It has societal relevance in offering information which is applicable for tourism corporations who want a better understanding of the capacity of peoples' mind in synergy with Virtual Reality. For instance, allowing disabled people to get closer to their travelling desires through alternatives ways. Moreover, the investigation is relevant given Virtual Reality's huge potential to enhance the quality of life of people worldwide (Slater & Sanchez-Vives, 2016).

1.1.1 Research Question

Considering the following rational and purpose, the research question aims to be answered:

How enabling the sense of presence through Virtual Reality may provide a key to achieving a tourist experience?

This central question can be specified in several sub-questions. The first question focuses on the better understanding of today's definition of tourist experience. Therefore, the first sub-question is:

1. How does Virtual Reality enable the sense of presence?

The second question addresses its focus on the state-of-art in virtual reality, which will be studied with special consideration to its role in enabling sense of presence.

2. What is the meaning of a tourist experience from the dialysis point of view?

Finally, the third question concentrates on combining technology and tourism leading to an unified approach. Hence, the last sub-question becomes:

3. What represents sense of presence in a tourist experience?

It was with this proposition in mind that the following objectives were proposed in the present study:

1. To understand the meaning of tourism experience highlighting its composition as well as from the dialysis perspective.

2. To analyse the composition of Virtual Reality Technique emphasising the sense of presence and its meaning.

3. To suggest a model based on theoretical elements reviewed including both sense of presence through Virtual Reality and Tourism Experience.

4. To examine how enabling the sense of presence through Virtual Reality might provide a key to achieving tourism experience for dialysis patients based on the model proposed.

To achieve these objectives the following structure has been established:

Section 2 examines the composition of tourist experience and virtual reality experience. The chapter pays special attention to the composition of each phenomenon. At the end of the section, it is provided an overview of the theoretical framework which it is used for the further development of the research. Section 3 explains the scientific research methodology that it was applied in the design and implementation of the investigation. The methods for data collection, informant selection and data analysis are discussed. Section 4 firstly examines the meaning of a tourist experience of dialysis patients. Further, the section evolves though an investigation of the effect of Virtual Reality in the perception of tourism experience based on the model provided in section 2. An empirical analysis, based on semi-structured interviews and questionnaires processes the results gathered. Section 5 related to findings illustrates the main results. In line with the research question and the exploratory nature of this study, limitations are identified and recommendations are provided to point out future approaches in the growth of further research.

1.2 Presentation of the case study

The research problem entails a theoretical and methodological investigation by progressively focusing on the theoretical compositions of tourist experience and sense of presence into the same frame. Then, its developed an accurate methodological section referring to the collection and interpretation of the data based on several gradual stages to identify dialysis tourist experience and their Virtual Reality involvement.

Hence, the research problem is examined in a case study design because allows in-depth review of the phenomena presented. Additionally, it provides knowledge about real-life experiences from a multiple source of evidences (Yin, 2009).

1.2.1 About dialysis

This research integrates tourism and healthcare linked by a new bridge called Virtual Reality. Therefore, before continuing with the development of the investigation, it is relevant to get familiar with dialysis meaning and its procedure

The kidneys are two organs located on either side of your spine (Gilligan Hannah,Venesy David M, Gordon, 2011, p.4). They are responsible for purifying your blood by removing waste and excess fluid from your body. If kidneys do not work properly, an artificial intervention is needed to perform the function of these organs. This process is called dialysis.

There are two types of dialysis; Peritonaldialysis (PD) and Hemodialysis/Haemodialysis (HD).

- Peritonaldialysis (PD): wastes and water are removed from the blood inside the body using a peritoneal membrane of the peritoneum as a natural semipermeable membrane.
- Hemodialysis (HD): it is the most common type - about 90% of all dialysis patients. It removes waste and water through circulating blood outside the body through an external filter, a dialyzer that contains a semi-permeable membrane (National Kidney Foundation, 2017).

According to European Renal Care Providers Association (2013) is estimated that there are 3.2 million people worldwide suffer from End-stage renal disease (ESRD) and the number of patients diagnosed with the disease continues to increase at a rate of 5-7% per year. Further, it is predicted that number of cases of kidney failure will increase disproportionately in developing countries, such as China and India, where the number of elderly people are increasing (Jha et al., 2013).

MarketsandMarkets (2017) pointed out in their report “Hemodialysis and Peritoneal Dialysis Market Products - Global Forecast to 2021" that the market is expected to reach USD 83.89 Billion by 2021, growing at a CAGR of 6.0% from 2016 to 2021.

The study indicates that in 2016, North America (comprising the U.S. and Canada) is estimated to account for the largest share of the global hemodialysis and peritoneal dialysis market. The large share of this region is attributed to several factors, such as its higher per capita income as compared to other regions, favourable reimbursement scenario, and huge demand for dialysis procedures. However, the Asia-Pacific dialysis market is expected to witness the highest growth in the forecast period (MarketsandMarkets, 2017). Factors such as the presence of a large patient population base, increasing number of private and public owned dialysis centres, improving reimbursement and insurance scenario, and increasing government initiatives are propelling the growth of the dialysis market in the Asia-Pacific region. The major players in the global hemodialysis and peritoneal dialysis market include Fresenius Medical Care AG & Co. KGaA (Germany), DaVita Healthcare Partners, Inc. (U.S.), Baxter International, Inc. (U.S.), B. Braun Melsungen AG (Germany), Nipro Corporation (Japan), Diaverum Deutschland GmbH (Germany), Nikkiso Co. Ltd. (Japan), Asahi Kasei Corporation (Japan), and NxStage Medical, Inc. (U.S.).

This is a global issue which must be considered when developing new strategies to anticipate the dialysis future needs.

A typical dialysis session includes the following steps (KidneyPatientGuide, 2009)

1. Patient goes to a hospital during their allocated dialysis session (morning, afternoon, evening);
2. Patient is weighted to determine how much fluid needs to be extracted;
3. Machines are primed and nurses check patient's blood pressure;
4. Patient is connected to the dialysis machine either by a line or thought a fistula;
5. Patients' blood is cleaned and monitored by machines and nurses;
6. Patient is disconnected from machine;
7. Blood pressure is checked and patient is weighted again.

The time of this process depends on the following variables:

- How well your kidneys work;
- How much fluid weight you gain between treatments;
- How much waste you have in your body;
- How big you are.

Generally, each hemodialysis treatment takes around four hours and is done three times per week.

1.2.2 Dialysis tourists

Tourist experience is perceived as an excited part of today's life. Enhancing the overall chain process to facilitate its organisation becomes one of the tourism challenges. However, for individual with special needs, the experience of planning and carrying out a trip often entails a complex logistic plan. Disabled people who travel, or would like to travel, comprise a large yet often overlooked market segment(Huh & Singh, 2007).

Dialysis patients are one of the disabled tourist target groups which need special attention due to their treatment routine. Their needs require special attention generating the challenge of combining both, pleasure of the trip and treatment routine in the same path. Dialysis patients have to be at the hospital three times per week around four hours per day (Selts, 2017). This fact represents a restriction for those individuals who want to travel.

The first stage of this case study aims to understand these restrictions by illustrating the meaning of travelling on dialysis and its tourist experience.

By comprehending the frame of the tourist experience, the research suggests an alternative way to achieve the experience based on Virtual Reality Technology (Guttentag, 2010; Slater & Sanchez-Vives, 2016; Williams & Hobson, 1995)

1.2.3 Usability of Virtual Reality in Tourism

One of the interesting points in Guttentag's paper (2010) explains the functionality of Virtual Reality from an accessible point of view. Accessible tourism is defined by UNESCAP (2009) as "tourism and travel that is accessible to all people, with disabilities or not, including those with mobility, hearing, sight, cognitive or intellectual and psychosocial disabilities, older persons and those with temporary disabilities." Focusing on the technology, this access is limited to a virtual world, yet it certainly is preferable to any alternative apart from actual visitation, which in many cases may be impossible (Guttentag, 2010, p. 643).

The following examples may illustrate better the functionality of this technology within the tourism context:

Shakespeare's Birthplace in Stratford-upon-Avon

Elements such as architecture or transportation become barriers for those people with limited mobility. Shakespeare's Birthplace in Stratford-upon-Avon is the place where he was born and grew up. This attraction welcomes to all visitors around the world, including people with disabilities. They offer wheelchair-accessible toilet; introductory audio-visual tour with space for wheelchairs and pushchairs as well as Braille guides (Shakespeare Birthplace Trust, 2016).

However, its particular architecture does not allow access to the first floor for wheelchair users. The alternative proposed was to provide a virtual reality tour service of the area with a touch screen giving the choice of a guided or self-navigating 3Dtours.

Thousand Buddha Grottoes – Mogao Caves

Situated at a strategic point along the Silk Route, at the crossroads of trade as well as religious, cultural and intellectual influences, the 492 cells and cave sanctuaries in Mogao are famous for their statues and wall painting, spanning 1.000 years of Buddhist art (UNESCO, 2014).

The presence of tourists damaged parts of the heritage components. Consequently, China has put all World Heritage sits under top-level protection in order to preserve its authenticity and integrity. This situation leaded to a necessity of restricting the entrance to visitors as a measure of protection.

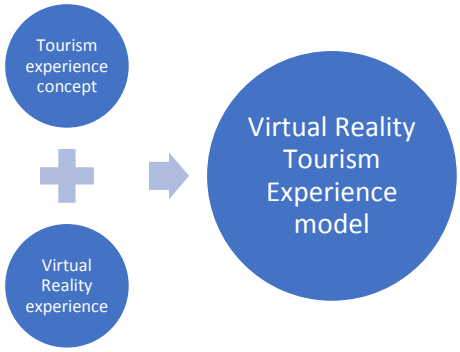
The alternative proposed was to begin offering a different way for people to experience the Buddhist Grottoes; Virtual Reality tour ("Mogao Caves", 2017).

These cases reflect just two of the many examples already existing to facilitate the enjoyment of a tourist experience through Virtual Reality. Additionally, virtual environments can provide outlets where disabled individuals can bypass traditional barriers and enjoy dynamic and interactive virtual travel experiences (Parrinello, 2001).

The second stage of this case study aims to explore a specific functionality of Virtual Reality in tourist experience. In accordance to the main research question, it refers to an enquiry about the meaning of sense of presence in a tourist experience.

This section of the case focusses on how enabling the sense of presence through Virtual Reality may provide a key to achieving a tourist experience; specifically, for dialysis patients.

Figure 1: Themes framing the theoretical construction of the thesis



Source: own compilation (2017)

2. THEORETICAL FRAMEWORK

This chapter aims to break down each variable and describe the theoretical definitions based on previous investigations. It will provide a whole understanding of the different variables related to the problem statement. Following the objectives of the research, two separate fields will be defined and discuss. The main variables in the research question are “tourist experience”, “virtual reality” and “sense of presence”.

The chapter concludes by interrelating both fields in one figurative overview to illustrate the connection and using it as a theoretical outline for the further development of the study and its analysis. To be able to develop this model, an interactive character was adopted - going back and forth movement between sections – it is done to guarantee its accurate interpretation (Baxter & Jack, 2008).

Firstly, based on tourism field, the meaning of tourist experience is introduced. Secondly, from a technological point of view, the concept of virtual reality and sense of the presence is discussed. The last section of the theoretical background offers a review of these concepts connecting both fields.

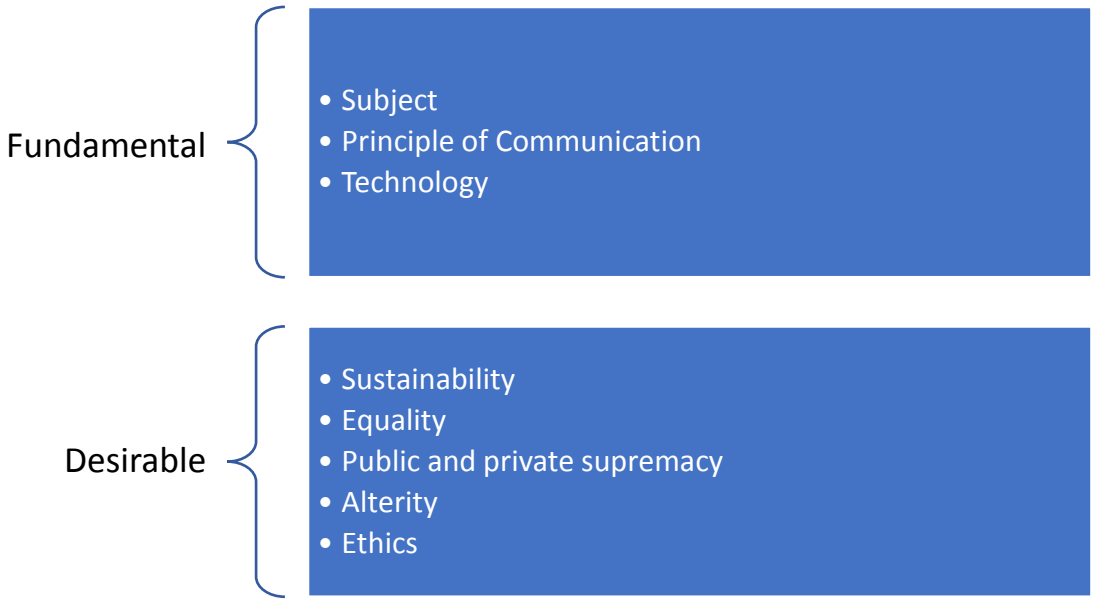
2.1 Defining tourist experience

The aim of this first section is to provide a better understanding of the tourism experience meaning. Thus, the chapter begins outlining briefly the concept of “tourism” and “experience”, relevant to point out how these terms are understood and adopted in the research. As a next step, I concentrate on the concept of tourist experience to interpret and comprehend its meaning. Lastly, an updated model of the concept is reviewed and used further in the analysis of the investigation.

2.1.1 The meaning of tourism phenomenon

Tourism, as other intangible phenomenon, has always been always difficult to define. It started with the need of running from society or for mental and physical health (Cohen, 1979). According to the UNWTO (2016) tourism comprises the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes. Other authors such as Mathieson & Wall, (1982, p. 1) defined it as the temporary movement to destination outside the normal home and workplace, the activities undertaken during the stay, and the facilities created to cater for the needs of tourists. Tourism has also been identified by Patiño, Medina, & Arilla, (2016) as a phenomenon taking place far away from home. At the symbolic level, it represented an escape from boring everyday existence and a quest for self-fulfilment. Then again, Tribe (2009) considers the importance of establishing the principles of tourism. Hence, he identified fundamentals and desirability as the main one. The chart below sumps up the structure of his considerations.

Figure 2: Principles of Tourism



Source: own editing based on Tribe (2009)

In this line, the definition that Tribe (2009, p.59) proposes is the following one: "tourism is a phenomenon caused by the departure and return of human beings from their place of habitual residence, for reasons that can be revealed or concealed. It generates sensorial and psychological experiences as well as positive and negative effects on the economic, political, environmental and socio-cultural environments".

Scanning these definitions leads to identify mobility as an essential condition to carry out tourism activities. Mobility to a new space is deeply implicated in the tourist experience. The spaces of tourism are the spaces of movement, destination, experience, memory, and representation (Wearing, Stevenson, & Young, 2009). According to the author, there are also spaces of desire, fantasy, creativity, liminality, reordering and enchantment. Increasingly, too, tourism is about the space of the virtual and the imaginary.

Guided by innovation and the inclusion of technological advances, these elements have evolved its meaning through a less physical substance. In a research conducted by (Markham, 1998, p. 86) revel a state in which mind and body emerged with the computer, or the mind separates from the body to be inside the machine creating and expressing the soul in abstraction through interaction. Therefore, even the way of perceiving time and space is different, people encapsulate experiences leading to value-creation.

This thesis focuses on virtual space, a new dimension to consider which also generates sensorial and physiological experiences. Through the years, the customer consumption of the space has had an evolution from only tangible to also the interaction of intangible dimensions allowing the exploration the others spatial structures (Wearing et al., 2009, p.12). Consequently, this interaction leads to a temporary escape.

Contributing to the definition, another factor is being highlighted; the concept of escapism. Wearing et al., (2009) emphasises tourism as a means of escape from everyday life, even if such escape is temporary. In his statements, he also addresses travel as a means of self-development, a way to broaden the mind, experience the new and different and return in some way enriched.

McCabe (2005), in his review of tourism studies, aiming to define the term "tourist", goes a step back. Firstly, McCabe (2005, p.88), is assessing tourism definition from other studies, concluding that "tourism is the leisure/recreational experience par excellence in that it enables a temporary escape from the centre, which nevertheless remains of peripheral significance". As it is pointed out in the article, temporary escape "from the centre" refers to time and place variables within the context of their own society. Within this approach, tourist travels through time and space encapsulating experiences (Prebensen, Chen, & Uysal, 2017).

All in all, Wahab (1977, p.3-4) states the anatomy of the tourist phenomenon. Basically, it is composed of three elements: the human being (human element as the author of the tourist act), the space (physical element necessarily covered by the act) and the time (temporal element that is used by the travel and by the stay in the destination) (Tribe, 2009, p. 52). This structure is stimulated by the need of temporary escape from the daily routine.

Time and space conditions in combination of the notion of escapism are relevant for the development of this research. As it was mentioned above (p. 6) this research focuses on a particular cohort of individuals who are mobility restricted due to their lack of physical condition leading to a constant and boredom routine. Thus, tourists with dialysis are individuals with special needs who are facing additional requirements to carry out a movement to another place and accomplish a tourist experience and reach escapism. Therefore, tourist with dialysis do not perceive time and place variables in the same way as conventional tourists.

Recent studies concerning tourist experience are focused on identifying and defining the nature of the experience of the tourists (Wearing et al., 2009). Behind this idea, there is the need to understand the relationship between the type of experiences and the type of tourists. To dig deeper into this idea, it is required to identify the meaning of experience as well as the current definition of being a tourist.

2.1.2 The meaning of tourist experience

Conceptualizing the term tourist experience means paying attention to both "tourist" and "experience" variables.

Originally, the study of the term tourist focused on identifying and defining the nature of the experience of tourists (McCabe, 2005). Currently, all are tourists in their own town (Gretzel & Jamal, 2009). According to the authors Gretzel & Jamal (2009, p. 471) paradigmatic changes in tourism have occurred and changed existing notions of tourism and travel as well as the experiences they encompass.

Experience come to life through interaction with both the physical environment and humans (Prebensen et al., 2017). O'Dell & Billing (2005) described experience as a subjective, intangible, continuous, and highly personal phenomenon. Volo (2009, p. 15) in her research about conceptualizing experience identified several definitions of the term "experience" defined by Oxford English Dictionary in 1989 (Simpson, Weiner, & Oxford University Press, 1989):

- The fact of being consciously the subject of a state of condition, or of being consciously affected by an event.
- What have been experiences; the events that have taken place within the knowledge of an individual, community, mankind at large, either during a particular period or generally.
- The fact of being consciously the subject of a state of condition, or of being consciously affected by an event. Also, an instance of this, a state or condition viewed subjectively; an event by which one is affected.

Other authora emphasises definitions such as "a steady flow of fantasies, feelings and fun" (Holbrook & Hirschman, 1982, p. 132) or "triggered stimulations to the senses, the heart, and the mind" (Schmitt, 1999, p. 25). According to Pine & Gilmore (1998, p. 11) a customer experience is created when "a company intentionally uses services as the stage and goods as props, to engage individual customers in a way that creates memorable event". Hence, applying to tourism field, tourist experience has been defined as a composite combination of factors that shape the tourist's feeling and attitude towards his or her visit (Schmitt, 2010).

Within tourism context, academic literature identified levels and dimensions of (Bello & Etzel, 1985; Ritchie & Hudson, 2009).

Ritchie & Hudson (2009) are distinguishing five levels of experiences: the basic experience, the satisfactory experience the quality experience, the extraordinary experience and the memorable experience.

Bello & Etzel (1985) are categorizing experience into six fundamental dimensions: Hedonic Dimension, an Interactive or Social Dimension, a Novelty Seeking or Escape Dimension, a Comfort Dimension, a Safety Dimension, and a Stimulating or Challenge Seeking Dimension.

Despite these distinctions the final goal is to provide the expected experience that the tourist wishes. For instance, people who are traveling from China to eat at the restaurant "El Celler de Can Roca" are expecting to have a memorable experience. In a practical approach, those are categorized as gastronomic due to their main propose to be experienced; food. In tourism, an experience has a strong relationship with the different typologies of tourists (Noy, 2004; Quan & Wang, 2004). The challenge is selling the experiences expected. Volo (2009) acknowledges the work of Uriely (2005) who identified the evolution of the experience highlighting four elements:

1. Re-conjunction between leisure and work/everyday life activities;
2. Multi-type individual who search "micro-types" of tourism activities;
3. Subjects centrality in shaping the experience;
4. Complementary interpretation.

The function of the whole experience is to run to other spaces which can provide the opportunity to escape from the stresses and strains of working life. From this perspective, the experience of the tourist as a consumer happens to be different depending on the purpose in mind. As a result, the creation of value in a tourist experience is stimulated.

Within the linear approach of the chapter, the meaning of tourist it is also being reviewed.

Research on the meaning of tourist has extensively carried out (Cohen, 1974; Mathieson & Wall, 1982). However, the meaning of tourist in virtual spaces is still a relatively unexplored concept in the academic research. Therefore, it is highly significant to clarify what is the meaning of tourist in the context of the current research.

Looking at the background, the term "tourist" has been widely defined. In 1963, the United Nations defined tourist as temporary visitors staying at least twenty-four hours in the country visited and the purpose of whose journey can be classified under one of the following headings:

- Leisure: recreation, holiday, health, study, religion, and sport;
- Business, family, mission, meeting (Leiper, 1979, p. 393).

Tourist has been defined as "a person who travels outside of his normal environment for a period of more than 24 hours" (Mathieson & Wall, 1982). Cohen (1974) first began to develop the idea of "the sociology of international tourism" based on a fourfold typology of tourist experiences:

1. The organized mass tourist;
2. The individual mass tourist;
3. The explorer;
4. and the drifter.

These categories homogenise their profile into these four groups. He unified typificatory concepts with roles and experiences, proposing a range of tourist roles with common characteristics. Hence, people become tourists through the act of travelling or making a journey that must start and end in the same place, as well as defining the purpose of the trip; pleasure, distraction, relaxation (Tribe, 2009). Despite this, trying to differentiate between the type of travel or tourist profile becomes highly important. The possibility of adding a deeper understanding of the desired experiences that people wish for, it is beneficial to provide them with the satisfaction expected. However, the degree of difficulty of this task has been increasing. Franklin & Crang, (2001) argue that the increased mobilities resulting in changes in the experiences of space. As it was mentioned previously, space is one of the key elements in experiencing tourism. Business travel or international students are facing tourism in a non-conventional way due to the increased mobility. This fact makes the world an extension of people's home (Gretzel & Jamal, 2009).

McCabe (2005) argues that in focusing on subjectivities, tourist studies have overlooked the importance of the wider social discourse of tourism in shaping and defining individuals' versions of their experiences. He suggested that to develop a meaningful engagement within the sociology of tourism with tourists, we have to recognize the cultural and interactional contexts in which we engage with our subjects. This approach emphasises the idea that the purpose of the tourism activity produces the meaning of the tourist experiences.

However, from a general perspective, the structure of identifying the tourists consumption of travel is being radically changed. According to the research made by Adhikari & Bhattacharya (2016) the concept of travel experience is driven by the creation and consumption of tourism and related products that not only provide experiences for the traveller but also create sensory feelings when travellers directly or indirectly interact with the organization, product and purchase environment on different occasions.

For instance, the insertion of new devices into day to day life has had a significant impact on the typology of tourists, their behaviour, and the purpose of a tourist experience. The reason is the change in the interaction processes. Facetime or Instagram Live compresses time and space affording the interminability. Consequently, these applications have become the bridge between people and place interacting and generating emotional attachment. Time and space relationship provide a crucial

framework to human experience (Gretzel & Jamal, 2009)). Consequently, Gretzel & Jamal (2009) study also assumes that the tourist experience influenced by the use of technological advances is undergoing a change.

In line with these ideas of tourist typology and the inclusion of technological advances, Gretzel & Jamal (2009) conceptualized the Creative Tourist Class. The concept reveals a new type of tourist raised by the effects of new technologies and new virtual sites and spaces that influence the everyday and touristic experience. Thus, their increased use of technology and mobility makes them different. The early thoughts of Cohen (1979) proposed a fivefold phenomenological typology of tourist experiences rooted in the concept of the "centre" (p. 180). Those five typologies are recreational, diversional, experiential, experimental, and existential. In an intent to define centre, the author pointed out that the spiritual centre of the modern individual is their society, and conformity to society's pressures creates tensions and dissatisfactions which are taken care of through "tension management" (Cohen, 1979, p. 181). Thus, for each typology, the following definitions have been established:

- Recreational: a modern individual who is attached to the "centre" of his own society (and not alienated from it) will strive to "recreate" himself from the strains which it provokes in the recesses of the "other", beyond the boundaries of his world (p.36).
- Existential: a modern individual who is completely alienated from his own society, and seeks an alternative to it, will tend to embrace the "other" beyond the boundaries of his world, and turn it into his "elective centre." Such a tourist will seek existential experiences, and will be deeply concerned with their authenticity (p.36).
- Experiential: an observer, who, though concerned about the authenticity of the "other", which he experiences, does not identify with it. He, therefore, occupies a middle position between the recreational and existential types.
- Experimental: tourist (located between the experiential and the existential types) who seeks, but has not yet found, an "elective centre" in the "other", and is much concerned with the authenticity of his experiences.
- Diversional: located between the recreational and experiential types who, though alienated, does not seek authenticity.

However, studying the new Creative Class, Gretzel & Jamal (2009)pointed out that this specific type of tourists are seekers of experiences which are intense, high-quality, multidimensional, active, unique, meaningful and authentic, with authenticity being defined as "not generic". Cohen (1979) defined tourism experience as the relationship between people and their total world-view dependent on the location of their centre with respect to the society to which they belonged. These authors point out

two characteristics to the term human experience: feelings and a relationship with the environment. As time and proximity, these other two characteristics are highly important to highlighting as are significant for the whole research development.

Holbrook & Hirschman (1982) considered experience as a personal occurrence with highly emotional significance obtained by the consumption of products and services. Once again, the emotional site is emphasised. Both researches are based on the same pillars. Nonetheless, the difference perceived from Cohen (1979) to Gretzen & Jamal (2009) is the inclusion of paradigmatic changes such as mobility and the use of technology in tourism. In this way, it is leading to challenge existing notions of tourism and travel, and the experiences they encompass to a new conceptualization of tourism experiences. This represents one example of how new insights allow the existence of new types of tourists who can experience tourism in alternative ways.

The investigator is fully aware that the evolution of the way that society interacts generates experiences arising new branches to create emotional value. The reconfiguration of time-space notions affects the entire tourist experience. Another example originated by the evolution of technological advances is Global nomadism (D'Andrea, 2006). Increasingly, the mix of digital and real life inspires new types of interactions leaving behind the original tourist' typologies but originating others.

Focusing on Virtual Reality technology, this will be soon redefining the complete travel experience (Williams & Hobson, 1995). For example, it would be possible to visit Spain without moving from the sofa or have virtual meetings without a need to actually travel anywhere to meet each other (Guttentag, 2010)). These examples are leading to a change. Nevertheless, Williams & Hobson (1995) are identifying an interesting question: Is it entertainment when you can experience travelling around the Himalayas from the privacy of your own living room - or is it tourism?

This research reviews the difference between entertainment and escapism to respond from a theoretical point of view to this question. However, as other intangible concepts, there is no theory that defined the meaning and extent of tourist experiences, although a number of authors have made attempts to formulate connotations (Chhetri, Arrowsmith, & Jackson, 2004, p. 34).

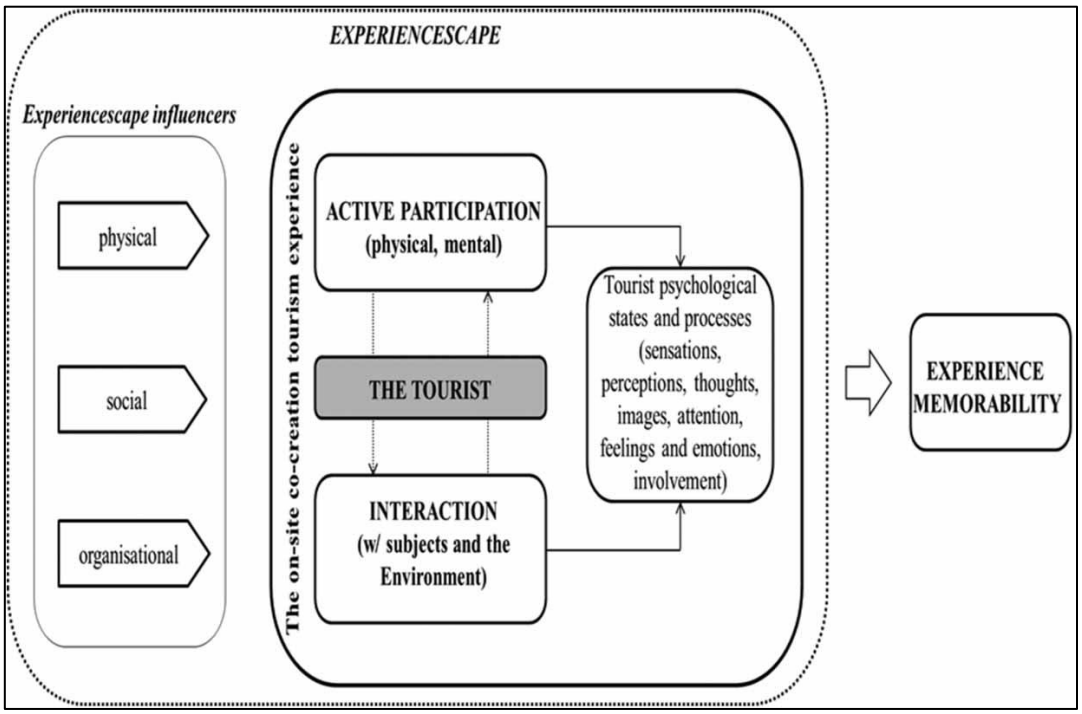
2.1.3 Tourist experience model

To accomplish a whole understanding of the elements and dimensions of a tourist experience three models are being reviewed. Firstly, the co-creation of the tourist experience proposed by Campos, Mendes, Valle, & Scott (2015). Afterwards, in accordance to the purpose of tourism activity, escape from the daily routine and determine the difference between entertainment and escapism, Pine & Gilmore (1998) model is illustrated. Finally, this research bears in mind that tourists are indeed customers who buy experiences. Therefore, takes into account the multidimensional model proposed by Walls, Okumus, Wang, & Kwun, (2011). The creation of the tourist experiences implies the challenge of mixing the right ingredients according to the taste of each customer. For instance, the new Creative Class would be highly unsatisfied if the WIFI of their hotel would not work. This situation would lead to a negative experience. Memorable tourism experiences offer occasions for people to create their identity, increase personal competencies and fulfil cherished desires and dreams (Mehmetoglu & Engen, 2011; Morgan, Elbe, & de Esteban Curiel, 2009). Interaction and participation became essentials to build up and sell experiences (Campos et al., 2015). According to this author, when the customer is highly involved in the process of experience co-creation, the engagement is also higher. Allowing oneself to do things and being involved in activities for self-development or exploring multisensory environments by connecting people ensures a better and positive effect on the tourist mind (Buhalis & Laws, 2001).

Aiming at contributing to the co-creation of tourist experience, Campos et al., (2015) developed a conceptual framework. In the research, the co-creation of tourism experiences it is defined as the sum of the psychological events a tourist goes through when contributing actively through physical and/or mental participation in activities and interacting with other subjects in the experience environment (p.23). By analysing this definition, essential variables can be identified, such as active participation and interaction.

As it has been identified in the previous definitions, tourism represents a way of escaping. Relating the term “escape” with the concept “experience”, O’Dell & Billing (2005) characterizes the *experiencescape* as the environment in which the tourists experience takes place, including the particular contexts, the physical objects, the subjects and their sets of relationships (Campos et al., 2015, p. 21). The model proposed by the authors to enhance the understanding of the elements composing *experiencescape* is the following one:

Figure 3: The tourist on-site co-creation experience: a conceptual framework.



Source: Campos et al., (2015, p. 24)

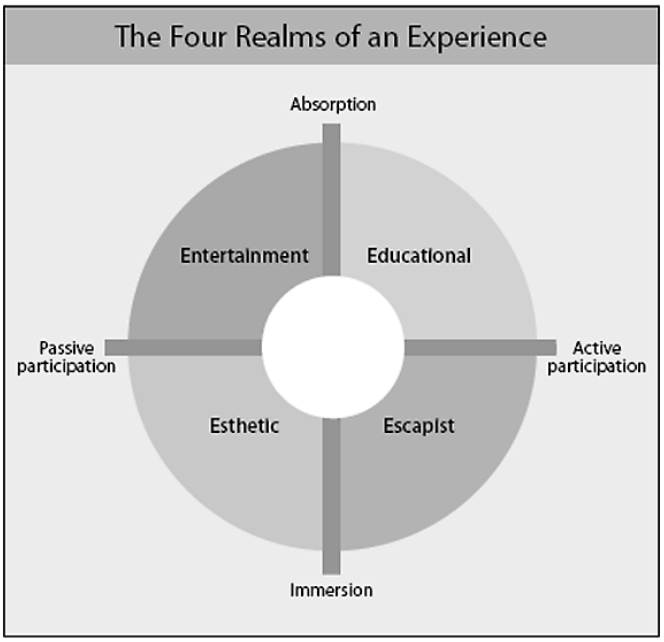
The authors integrate dimensions, such as physical aspects of the environment, social actors, and participants, and organizational dynamics and features of service delivery. These influencers are external to tourists allowing in part, the management, and organisational features of the experience. The tourist occupies the centre of the model. It represents the main role to developing experience through interaction and activate participation with the surrounded elements and subjects. Both active participation and interaction affect the tourist's "immediate conscious experience" (Mannell & Iso-Ahola, 1987, p. 325), which is made up of perceptions, sensations, emotions, and other psychological events and processes (Campos et al., 2015, p. 25)The outcome of this process is known as memorability referring to the perdurable character of the collected experiences.

The authors then emphasis two internal dimension, active participations (mental and physical) and interaction with the subject and the environment which are working synergistically with the external dimension (physical, social, and organisational) appealing to the tourism attentions to raise *experiencescape* leading the memorability.

Though, even being a good path to understanding the co-creation of tourist experience, based on Experience Economy Theory (Pine & Gilmore, 1998). Escapist experience is achieved by involving greater customer immersion. According to Pine &Gilmore (1998), when it comes to thinking about experiences, there are two main dimensions to be taken into account: customer participation and

connection. At the same time, two other spectrums compose customer participation; active and passive participation. In the research, active participation refers to those customers who play key roles in creating the performance or event that yields the experience (p.101). On the contrary, passive is the other side of the coin where customers do not affect the performance at all. Regarding connection, absorption and immersion make the composition of the dimension. An example identified in the study to better understanding these spectrums is the following one: people viewing the Kentucky Derby from the grandstand can absorb the event taking place beneath and in front of them; meanwhile, people standing in the infield are immersed in the sights, sounds, and smells that surround them (p.101). By combining the spectrums of these dimensions, it generates The Four Realms of an Experience (Pine & Gilmore, 1998).

Figure 4: The four Realms of an Experience



Source: Pine & Gilmore (1998, p. 102)

As the graphic illustrates, mixing active participation and immersion leads to achieving escapist experience. For instance, when tourist A travels to Hawaii to practice skydiving or scuba diving, his/her level of immersion and active participation is higher than tourist B who travels to the same place and is watching around. Tourist A has higher chances to reach escapism than tourist B.

Considering the dimensions and elements reviewed, reaching Experiencescapist is a combination of active participation, immersion and interaction together with other external elements which are influencing the final tourist experience and its memorability.

The complexity of formulating today's experiencescapist desired by the tourist is highly increasing. Traditional conceptualizations of the tourist experience are no longer effective in the vastly different local-global systems of the 21st century (Gretzel & Jamal, 2009). In recent years, the concept has received a new current of attention, as consumers are increasingly striving for experiences delivered by services (Gretzel, Fesenmaier, & O'Leary, 2006). As described earlier, in tourism context the recent impact of information and communication technologies has transformed the nature of tourist experiences bringing new alternatives to consider such as Creative Tourist Class or Global Nomads, who were exemplified above. Gretzel and Jamal (2009) argues that a whole new range of tourist experiences becomes available, as new types of technologies facilitate new activities. In this regard, Huang, Backman, & Backman, (2010)state that tourism marketers explore and use the possibilities of immersive virtual environments to enhance and enrich consumer experiences due to its attractiveness. The actual physical travel phase to the destination is characterised by the tourist being on the move (Gretzel & Jamal, 2009; Neuhofer & Buhalis, 2012).

Even contemplating these changes in the tourist experience, the pillars and its functionalities keep being the same. Experience is composed by sensations and perceptions as well as memory (Volo, 2009). The sensory stimulants that accompany an experience should support and enhance its theme. The more senses an experience engages, the more effective and memorable it can be (Pine & Gilmore, 1998, p. 104). Physical, social and mental factors influence the core of the tourist experience leading to a personal realm such as perception and memory (Campos et al., 2015).

Concurrently, it is important to bear in mind that tourists are indeed customers who buy experiences. Walls et al., (2011) argue that customer experience is the multidimensional takeaway impression or outcome, based on the consumer's willingness and capacity to be affected and influenced by physical and/or human interaction dimensions and formed by people's encounters with products, services, and businesses influencing consumption values (emotive and cognitive), satisfaction, and repeat patronage (p.18). This definition involved the elements mentioned previously.

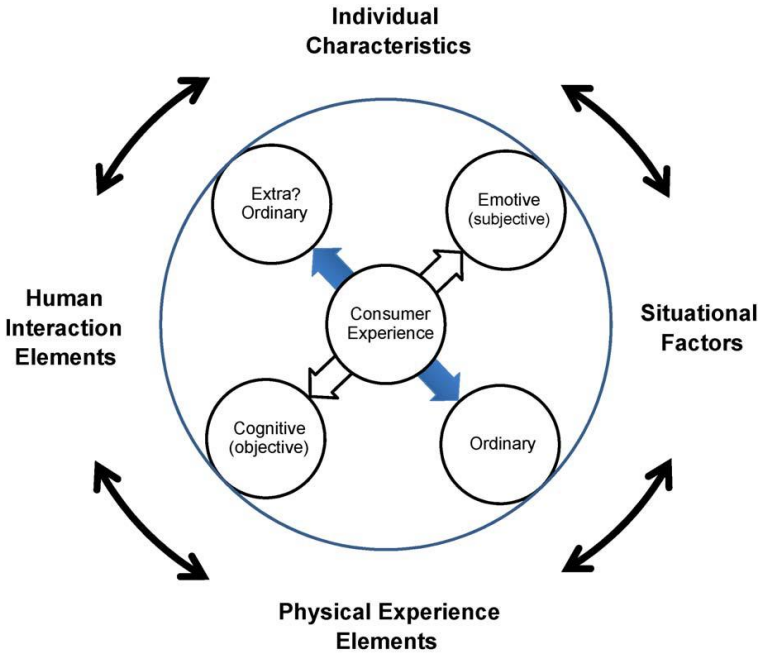
Customer's willingness to be affected and influenced by impressions represents one of the challenges in the tourist experience field due to its degree of subjectivity. This idea is relevant for during the development of the research design and the methodology process. By knowing the interests and values of the tourist (individual dimensions) who aims to buy an experience it is easier to reach the memorability cited in the model proposed by Campos et al., (2015). Consequently, the emotional state of mind must be taken into account when tourist want to be engaged within an experience. All in all, its multidimensional facets formed by external and internal factors are building the pillars to achieve the *experiencescapist* in the tourism field. The results is a memorable experience (Campos et al., 2015).

Walls et al., (2011, p. 17) posited that the core consumer experience is comprised of two axis representing four components including ordinary, extraordinary, cognitive and emotive. On the peripheral of the consumer experience are a number of factors that impact consumer experiences. It is posited that consumer experiences do not operate in a vacuum, void of external or internal effects, but are unique for each individual.

These influencing factors may include:

1. Perceived physical experience elements: experience environment through the five senses such as the texture of a painting in a museum.
2. Perceived human interaction elements: an example would be tourists participating in a workshop.
3. Individual characteristics: factors such as personality type, values, sensitivity to the environment.
4. Situational factors: purpose of the trip or the nature of the destination are good examples of these type of factors.

Figure 5: A framework for the composition of hospitality and tourism consumer experiences



Source: Walls et al., (2011, p. 17)

2.1.4 Conclusion

The development of a tourist experience is a complex process. A mix of the right elements can provide tourists with memorable experiences. Further, emerging technologies are increasingly involved in the creation of new sensuous tourist experiences (Gretzel & Jamal, 2009, p. 477). To co-create tourist experiences participants must get actively involved. Thus, active participation and interaction are key factors to take into consideration (Campos et al., 2015). Nevertheless, as it is mentioned above, the escapist spectrum is reached by combining active participation and immersion (Pine & Gilmore, 1998). Thus, a combination of these elements will provide the stimuli necessary to create the engagement necessary and generate a sensorial and psychological experience.

Without forgetting the dimensions which construct tourism experience (Walls et al., 2011) and inspired by the new typology of tourists identified as Creative Class (Gretzel & Jamal, 2009), this investigation assumes additional alternatives based on new technologies. Specifically, the use of Virtual Reality Technology to achieve a tourist experience.

The challenge proposed is to develop a case study applying Virtual Reality Technology which by enabling the sense of presence may provide a key to achieving a tourist experience without moving from a room. The experience sphere suggests that there are many dimensions which should be considered (Gretzel & Jamal, 2009). For instance, one of the possible applications as Guttentag (2010) suggests is that Virtual Reality can provide a form of “escape” but this is mental rather than physical escape (p. 645). Virtual Reality can also provide a way of interacting even if the nature of interaction is limited to the available technology.

Integrating this technology is not aiming to produce a substitution of the current tourist experience. Rather, the goal of the research is to study a possibility of accomplishing those feelings through an alternative addressed to those people with special needs.

2.2 Sense of presence through Virtual Reality Technology

The study of Virtual Reality Technology evolved through the years (Guttentag, 2010; Huang, Backman, & Backman, 2016; Steuer, 1992). This section aims to explore the meaning of this technology and its components which enable sense of presence. The meaning of sense of presence is key to understand the possibilities of facilitating the enjoyment of a tourist experience. Hence, the current chapter introduces the Virtual Reality phenomenon and its development. Also, it describes the process of reaching the sense of presence through this specific technology.

2.2.1 Virtual Reality: technology

Many researchers have investigated the meaning of Virtual Reality (Riva, 2007). Steuer (1992) defined it as a simulated environment in which a perceiver experiences the feeling of presence by means of a communication medium, a phenomenon referred to as telepresence (Riva, 2007, p. 1240). Steuer (1992) pointed out the limitation of the definition because of the hardware.

In terms of human experience, the key to defining Virtual Reality relies on the concept presence. Zeltzer (1992) mentioned other two elements - interaction and immersion - identifying Virtual Reality as an interactive and immersive experience - with the feeling of presence - in a simulated world. Additionally, Gigante (Earnshaw et al., 1993, pp. 3–14) emphasises the multi-sensory experience created by the immersion of the virtual world. In line with the technology composition, in the 1980s, NASA Ames developed the VIEW system (Virtual Interface Environment Workstation). This was a full Virtual Reality system with all components recognizable today: head-tracked wide field-of-view relatively lightweight HMD, audio, tracking of the body, tracked gloves that allowed participants to interact with virtual objects, tactile and force feedback (haptics) (Slater & Sanchez-Vives, 2016, p. 3).

Currently, it can be observed an evolution on the term. Researchers (Guttentag, 2010; Y. C. Huang et al., 2016; Ranjan, 2016) who are publishing about this technology are not focusing their definition on the hardware. Ranjan (2016) defined the term as a creation by the human experiences and the transformation of the abilities of the human body and mind rather than the technological hardware or software environment. This is significantly important to experience the presence in the virtual world. The design of the content and how it applies to our sensory channels can be more valuable than the hardware.

These statements can be summarized as the composition of an interactive computer simulation, which senses the user's state and operation and replaces or augments sensory feedback information to one or more senses in a way that the users get a sense of being immersed in the simulation or virtual environment (Mihelj et al., 2014, p. 1).

2.2.1.1 Virtual Reality: Experience

An experience sphere suggests that there are many dimensions of experience that should be considered (Gretzel & Jamal, 2009, p. 479). The same activities can be experienced in many ways. For instance, the application of Virtual Reality Technology in the tourism field can change the experience completely. This technology has the advantage of a unique technical visualization which can construct the traveling system (Guttentag, 2010). Virtual Reality is specially a way of communicating intangible tourism experiences. To achieve this dimension, sense of presence is key in the process.

As Guttentag (2010) identified, based on the hypothesized traveling system constructed by the virtual reality technology, the tourist can use the network environment to roam in the hypothesized traveling scene, carry on with the system real-time alternately, and according to their own wish, the tourist can choose the route and the viewpoint, achieving the feeling they experience personally. Therefore, Virtual Reality has the ability to simulate complex situation and context.

Virtual Reality Experience can be described by its capacity to provide physical immersion and psychological presence. The co-creation of Virtual Reality experience is based on the user's perception of the virtual world (psychological presence) and physical perception of the virtual world is based on computer displays, physical immersion (Mihelj et al., 2014). Back to tourism experience, from a tangible environment point view its value creation is also based on a sum of psychological events a tourist goes through when contributing actively through physical and/or mental participation in activities and interacting with other subjects in the experience environment (p.20). Therefore, process of both sites reflects similarities even though it differentiates the physical substance of the space (Wearing et al., 2009). Sense of presence play a key role to facilitate the enjoyment of a tourist experience though Virtual Reality.

While reviewing the concepts, there is not a general agreement on the factors comprehending this experience (Diemer, Alpers, Peperkorn, Shiban, & Mühlberger, 2015; Lisewski, 2006; Mihelj et al., 2014; Sherman & Craig, 2002). Theoretically, there are four main elements building this experience: virtual environment, immersion, sensory feedback and interactivity (Sherman & Craig, 2002).

According to Sherman & Craig (2002, p. 2) virtual environment is determined by its content (objects and characters). This content is displayed through various modalities (visual, aural and haptic), and perceived by the user through vision, hearing and touch.

Immersion (Lisewski, 2006) means the representational richness of a mediated environment as defined by formal features, that is, the way in which an environment presents information to the senses. This definition acknowledges the possibility of perceiving something besides the world you are currently

living in in two ways: you can either perceive an alternate world or the normal world from another point of view (Sherman & Craig, 2002).

Sensory Feedback, the Virtual Reality System provides direct sensory feedback, such as haptics, to the participants based on their physical position which implies the necessity of tracking the movement. The fourth one, interactivity refers to the degree to which users of virtual reality medium can influence the form or the content of the mediated environment (Lisewski, 2006). From this perspective, the experience of Virtual Reality is based on the user's perception of the virtual world, and physical perception of the virtual world is based on computer experience (Mihelj et al., 2014, p. 14).

There has been disagreement on the criteria for defining immersion. According to Miheli et al., (2014) immersion is exchanged by virtual presence. However, Lisewski (2006) separate Virtual Reality elements into three indicators: presence, immersion, and interactivity. Controversy, Diemer (2015) proposed presence as an outcome of the use of Virtual Reality technology. He suggested an interoceptive attribution model of presence as a first step toward an integrative framework for emotional research in Virtual Reality. According to Diemer (2015), if people feel more emotionally affected, the sense of presence is also higher. As in tourist experience, when tourists are more involved within the experience perceived, the engagement is also higher and therefore, the enjoyment of the subject substantial (Campos et al., 2015).

These studies (Diemer et al., 2015; Lisewski, 2006; Mihelj et al., 2014; Sherman & Craig, 2002) highlight valuable characteristics of each element involving the Virtual Reality Experience. Based on these discrepancies, it is necessary to describe the meaning of immersion and presence components.

2.2.1.1.1 Immersion

In the last two decades, many authors have been proposing definitions of the term immersion. Witmer & Singer (1998) define immersion as a psychological state characterized by the perception of being or feeling (enveloped by), (included in) or (in interaction with) an environment offering a continuity of various stimulatory experiences (Sadowski & Stanney, 2002). Other definitions refer to immersion as physical (Gutiérrez, Vexo, & Thalmann, 2008; Mihelj et al., 2014; Sanchez-Vives & Slater, 2005).

However, Sherman & Craig (2002) pointed out that both physical and mental terms reach the composition of immersion. They established that it is the sensation of being in an environment. It can be purely a mental state or it can be accomplished through physical means. Physical immersion is a defining characteristic of virtual reality; mental immersion is, according to the researchers, the goal of it. As stated before, the hardware applies to sensory stimulation while physiological experience is the mixt between technology and human mind.

There is a lack of common sense whether mental concerns presence or immersion. From this standpoint, the researcher related immersion to the resemblance of the Virtual Reality devices with human characteristics. Thus, the term is being positioned for what the technology delivers from an objective point of view. The more that a system delivers displays (in all sensory modalities) and tracking that preserves fidelity in relation to their equivalent real-world sensory modalities, the more that it is immersive (Slater & Wilbur, 1997). Considering these perspectives together, this research describes immersion as the technical capabilities of a system, it is the physics of the system (Slater & Sanchez-Vives, 2016, p. 5). Hence, considering Slater & Sanchez research (2016) immersive Virtual Reality system means one that delivers the ability to perceive through natural sensorimotor contingencies.

There are four factors affecting immersion (Witmer & Singer, 1998):

1. The isolation in the physical environment;
2. The perception of feeling included in the virtual environment;
3. The state of natural interactions and of control perception;
4. The perception of moving within the virtual environment.

These factors can provide four levels of immersion (Sherman & Craig, 2002, p. 388):

1. None whatsoever: The user feels only that they are connected to a computer;
2. Minor acceptance: The user believes in certain aspects of the environment. Perhaps they feel as though objects from the virtual world are floating in the user's space, but they do not feel part of the virtual world;
3. Engaged: The user doesn't think about the real world. They are concentrating on their interactions with the virtual world. If asked, though, they would be able to distinguish between the real and virtual worlds and would indicate that they are in the real world;
4. Full mental immersion: The user feels completely a part of the environment presented via the Virtual Reality system, perhaps to the point of forgetting they are tethered to a computer and becoming startled when they suddenly encounter the "end of the tether”.

In a Virtual Environment, the greater feeling of immersion leads to a greater feeling of presence (Seth, Suzuki, & Critchley, 2012; Sherman & Craig, 2002; Slater & Wilbur, 1997; Steuer, 1992). This is highly relevant for the development of the case study where the goal is to reach sense of presence stimulating the mind separation of the body inside of Virtual Reality technology aiming to communicate an intangible tourist experience.

The question relies on how much sensory immersion is necessary to induce the sense of being. Whether physical or psychological in nature, it allows the sense of belief that the user has left the real world and is now “present” in the virtual environment (Sadowski & Stanney, 2002).

2.2.1.1.2 Sense of presence

As Mosaker (2001) emphasises, ‘‘abstract ideas made visual are powerful in the sense that they present interpretations in very persuasive ways’’ (p.24). The capacity of experiencing a knife cut in a Virtual Reality world enables a body reaction, even knowing the action is not real. The recreation of additional realities applying to the multisensory system allows the illusion of being in a different place.

Contemplating recent studies such as Slater & Sanchez-Vives (2016) the notion of presence has become central to Virtual Reality.

Steuar (1992) refers to presence as the natural perception of an environment. Digging into the concept, it is the psychological perception of being “there”, within a virtual environment in which the person is immersed (Mestre & Vercher, 2011). Also, Slater & Sanchez (2016, p.5) referred to presence as the illusion of “being there” in the environment depicted by the Virtual Reality displays – in spite of the fact that you know for sure that you are not actually there. In other words, instead of being in the place where the particular body is located, presence allows the feeling of being somewhere else. Accordingly, the phenomenon of presence is based on the transportation of consciousness into an alternative, virtual reality so that, in a sense, presence is consciousness within that virtual (Sanchez-Vives & Slater, 2005, p. 338). Another relevant definition of this phenomenon, especially for the subject of this study, is suggested by Gerrig (1993). The author proposed that the concept of "being teletransported" seems equivalent to that of "being there". Therefore, the word transportation is being used to specify a state of mind.

Consequently, Gerrig (1993) adhered two factors to the definition of presence:

1. The “arrival” or the feeling of being “there” in the virtual environment;
2. The “departure” or the feeling of not being there “there” in the physical environment (Kim & Biocca, 1997, p. 4).

Going back to the definition of tourism, “arrival” and “departure” where two terms used to explain its composition (p.12-13). At this point, through a less physical substance arrival and departure terms are also used to englobe the notion of time during the involvement of the Virtual Reality phenomenon.

Researchers have also treated the presence subject from an individual perspective. They are highlighting psychological perception (Slater & Wilbur, 1997; Steuer, 1992) assuming the subjectivity of the experience. The individual psychological perception of presence within a virtual environment is

perceived principally as a product of the properties of immersion, and as being implicated in the virtual environment (Sadowski & Stanney, 2002). Thus, there are two main approaches affecting the feeling of presence; on one hand, there is the user's psychology and on the other hand the Virtual Reality system's ability to provide high quality data to the users' (Najafipour, Heidari, & Foroozanfar, 2014). Consequently, external and internal factors of the user denote the degree of presence. Basically, researchers recognized that presence is based on the interaction of the following elements:

- Sensory stimulations;
- Environmental stimulations;
- Internal predispositions of the person.

Heeter (1992, p. 262) differentiates three types of presence that can be experienced in the virtual environment.

1. Environmental presence: refers to the extent to which the virtual environment reacts as a function of the person during virtual immersion and as a function of the person's own reactions versus his/her actions.
2. Social presence: refers to the extent to which other beings (living or synthetic) also exist in the world and appear to react to the user. It exists only if various people co-exist in the same virtual environment. The attendance of other individuals offers added evidence that the environment is "real" enhancing the whole experience.
3. Personal presence: corresponds to the feelings of being present in a virtual environment as well as to the reasons invoked by the individual to explain this phenomenon.

Nonetheless, as it was mentioned previously, it is important to bear in mind that the degree of presence depends on the subjectivity and predisposition of each person. As in tourism experience, by allowing oneself to interact and be involved into co-creation experience process, the engagement is also higher ensuring a positive effect on the tourists mind (Buhalis, 2011).

This is highly important to stand out in line with the research. It has been mentioned before that the way of achieving a tourist experience is starting to change due to the ease of movement and technology. The Creative Class was one of the typologies that reflected the case.

Exemplifying the statements above, if a virtual smiley human asks if the hiking route that it has just experienced was nice enough, the response would be an automatic smile back and perhaps a head movement answering the virtual question. Virtual Reality technology delivers experiences that give rise to illusory sense of place and an illusory sense of reality (Slater & Sanchez-Vives, 2016). One of the goals proposed for this chapter, was to illustrate how Virtual Reality enables the sense of presence.

As stated before, what makes the idea of Virtual Reality unique is its ability to provide the sense of presence, the sense of being mentally someone else. By reviewing the elements composing the basis of Virtual Reality and its experience, the following overview has been suggested.

Virtual Environments provide physical separation from the real world by immersing users in the virtual world via an HMD. By imparting sensorial sensation via multimodal feedback, sense of presence is supported (Jacko, 2012, p. 655).

In line with this investigation, sensory experience is defined as an individual's perception of sense of presence through Virtual Reality technology as an interaction that challenges the human mind and senses. This interaction is stimulated it by sensory impressions. Academic research (Hultén, 2011) has shown that different sensory impressions impact user's behaviour and the perception of the reality. Hultén (2011) pointed out that the sense of the sight is the most powerful one for discovering changes and differences in the environment. He also talks about other impression and its connection to the user. The following chart sumps up the main ideas.

Table 1: Sensory impressions impact user's behaviour and the perception of the reality

MULTI-SENSORY EXPERIENCE	
Impressions	**Connection**
Sound	Links emotions and feelings Impacts brand experiences and interpretations
Smell	Links emotions and memories Related to pleasure and well-being.
Taste	Links emotions.
Touch	Links feelings and information through physical and psychological interactions

Source: Own elaboration based on Hulten (2011)

The more senses provided, the better the experience of Virtual Reality. Explicitly, if more than one of the five senses are applied with synthetically generated stimuli, then the sensorial experience is stimulated causing a bigger immersion. This fact leads to a bigger sense of presence.

Other factors such as the design of the Virtual Environment system influences the degree of reaching the proposed state. Details around a scene, maintaining a natural and realistic, yet simple appearance and utilize texture, colours, shapes, sounds and other features, must be accurately considered (Jacko, 2012). To generate the feeling of immersion and achieve sense of presence this research aims at discovering the interests of participants in order to provide the most interesting content. The research in to stimulate the predisposition of the participant to engage the experience. Similarly, providing natural modes of interaction and movement control, can contribute to enhance the result and enable sense of presence (Stanney et al., 2003).

It is important to clarify that this research does not dig into the specific technical details of how these elements might be designed. For the correct co-creation of the whole experience, interaction becomes the bridge between those two worlds where the body is allocated in one place and the mind "transported" to another leaded by an illusory sense of reality.

The alteration of objects or people in the virtual environments, changing in the viewpoint of locations, picking up objects and setting them down, flipping switches are some of the possibilities. There is also the concept of collaborative environment referring to multiple users interacting within the same virtual space or simulations (Mihelj et al., 2014, p. 12). However, this research does not consider that type of interaction.

Virtual Environments that engender a high degree of presence are thought to be more enjoyable, effective and well received by users (Sadowski & Stanney, 2002). This idea is supported by the right combination of the design of perceptual features (perceptual realism, interactivity, and control), individual factors (imagination and suspension of disbelief, identification, motivation and goals, and emotional state), content characteristics (plot, story, narration, and dramaturgy), and interpersonal, social and cultural context should be carefully considered (Riva, Davide, & IJsselstijn, 2003).

Heretofore, it has been illustrated the components necessary to be involved to contribute to the final outcome, sense of presence.

2.3 Overview of the theoretical framework

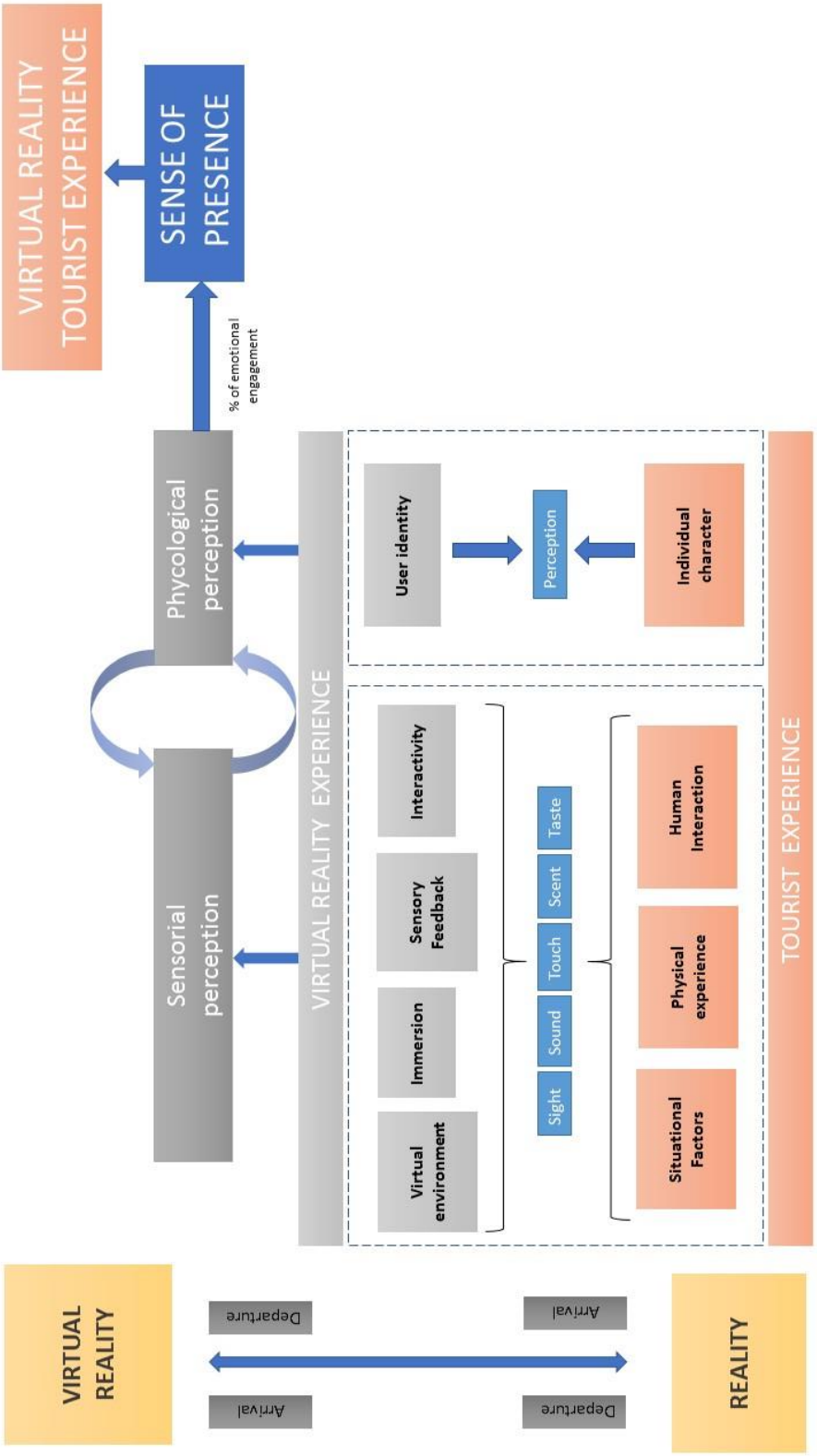
The theoretical framework of Virtual Reality Experience enables the sense of presence in relation with the elements constituting a tourist experience. The previous chapters defined the meanings of the components from both areas. The figure below (Fig. 6, p. 45) suggests a connection between tourism and virtual reality dimensions formulating a Virtual Reality Tourist Experience (VRTE) model.

The model involves a whole notion of time-space experience for the individual. There is indicated the involvement of a temporal departure from the reality and arrival to a Virtual Reality Tourist Experience (VRTE) as well as a departure from the Virtual Reality Tourist Experience to the arrival of the same point of departure. Going through this tourist scenario relying on virtual substance, several interrelated dimensions are comprising the whole model. As it was mentioned in the theoretical framework, four dimensions compose customer tourist experience: situations factors, physical experience, human experience and individual character. Translating this dimensions into Virtual reality context, virtual environment, immersion & sensory feedback interactivity and user identity represents its equivalences. The model starts reflecting the dimensions of a tourist experience in the tangible reality. The model differentiates two blocs: sensorial perception and psychological perception. Sensorial perception in a virtual reality experience is composed by virtual environment, immersion, sensory feedback and interactivity. Virtual environment refers to objects and other characteristics surrounding the visualisation. Virtual environment is perceived through the senses. Smell, sound, sight, visual and touch sensors lead to atmospheric, auditory, visual, gastronomic and tactic sensations. A multisensorial experience stimulated the immersion state of the body and sensory feedback. Interactivity is the capacity of interacting in the virtual environmental and navigating though the content empowering decision-making process. When there is a higher degree of interactivity and the experience appeals to more than one sensor, the level of immersion tends to be higher.

The second dimension reflected in the model is psychological perception. From a tourist perceptive, it is known as individual character. In virtual reality experience is the user identify. Both dimension make reference to the perception of the person involved. Perception entails attitude, personality, personal experiences, motivations, interests, expectations. The predisposition of the user is highly interrelated with the level of engagement succeed. The interaction of sensorial and psychological perception separates mind and body providing the feeling that individual was transported somewhere else by enabling the sense of presence. Thus, the model below (Fig. 6) suggests a connexion between the composition of tourist experience and Virtual Reality technology enabling the sense of being in another place. This phenomenon, facilitates the communication of an intangible tourist experience and stimulated its enjoyment allowing escapism through a Virtual Reality Tourist experience.

This model (Fig. 6) is a synthesis which also serves as an analytical frame during the research process.

Figure 6: Theoretical framework: the interrelated path between tourist experience and Virtual Reality



Source: Own elaboration (2017)

3. METHODOLOGY AND METHODS

Based on the research problem stated, this section explains the methodological stages and procedures employed in the design and implementation of the study. Therefore, the section goes through the steps followed during the research process illustrating the epistemological and methodological approaches to research.

3.1 Methodology

The main goal of the research is to explore and to describe how tourist experience may be perceived within a Virtual Reality dimension. Thus, the study is focused on the understanding of the phenomenon of sense of being through Virtual Reality technology enabling an intangible tourist experience for dialysis participants. Besides suggestions, there is still relatively little known about the sense of presence in the co-creation of a tourism experience and non-applicable in dialysis area. For this reason, the research is of an exploratory as well as descriptive nature and qualitative research approach.

Exploratory research is generally used to study phenomena aiming to gain more familiarity with it (Kothari, 2004). Because of the relatively unexplored subject, the research aims at gaining newer empirical insights (Veal, 2006) and to generate in-depth knowledge about the meaning of in sense of presence to achieve tourist experience. Hence, besides tourism, the investigation also involves technology and healthcare fields in the explorative nature of the enquiry.

Based on the review of the theoretical framework to understand the meaning of Virtual Reality experience, (p.27), authors such as Guttentag (2010) mentioned that this technology could enable sense of presence providing disabled people with an alternative way of experiencing tourism. This argument is crucial to recognizing the potential of the technology in accomplishing a tourist experience. Considering this alternative, the research goes a step further, examining how enabling the sense of presence through Virtual Reality may be key to achieving this tourist experience.

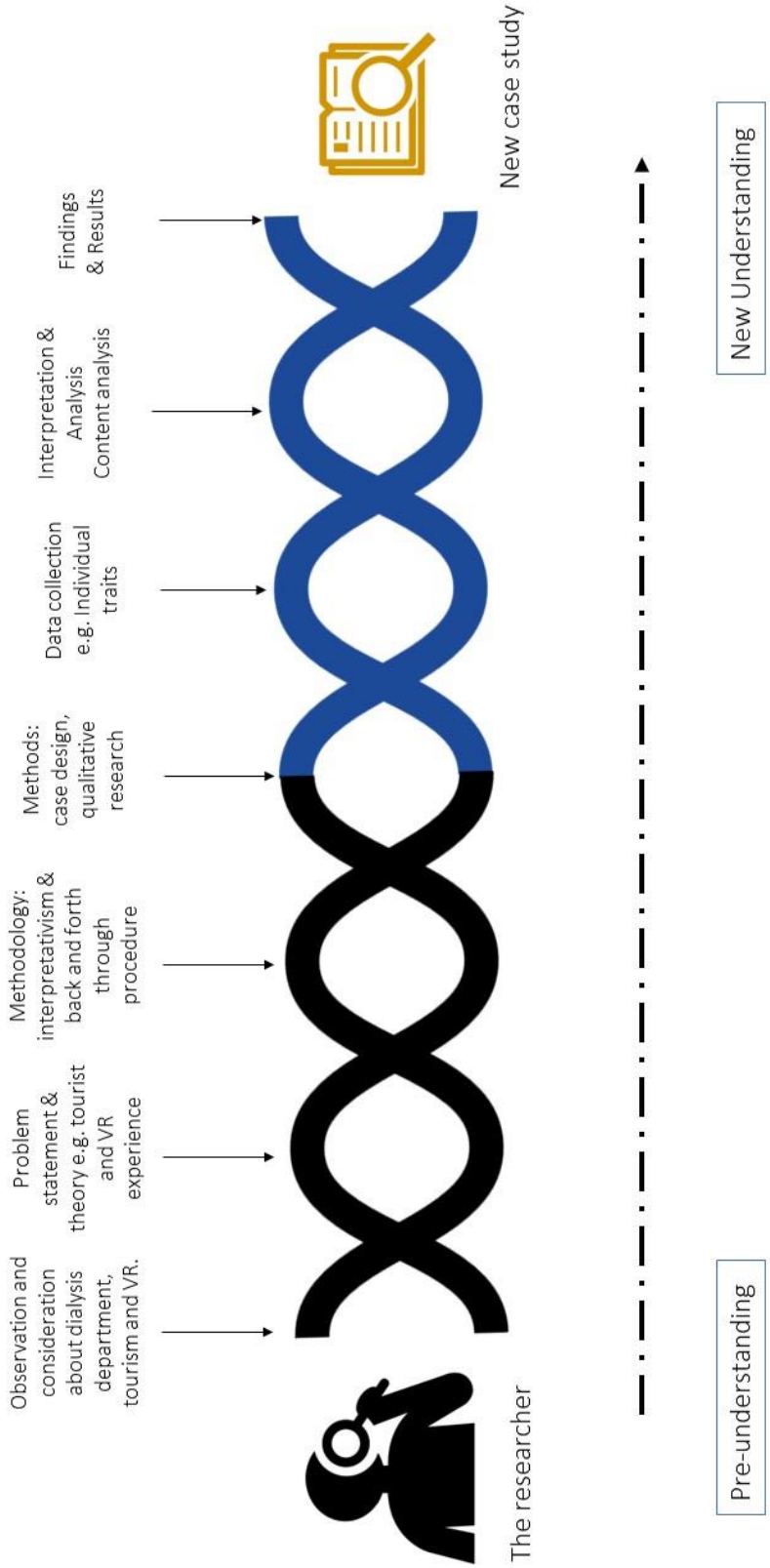
Further, descriptive studies aim to measure items such as similar data or people's preferences (Kothari, 2004, p. 3). In this case, based on a conceptual framework proposed (Fig. 6) from the overview carried out, the research aims at describing the attributes of the whole Virtual Reality Tourist Experience (VRTE).

The explorative nature of the research is followed by an interpretivist paradigm with a relativist ontological point of departure (Bergman et al., 2012). This allows the researcher to create meaning and interact with subjects who are being investigated. Prior to this study, the researcher had a pre-understanding about Virtual Reality. The previous professional and personal involvements allowed the investigator to take an active role during collecting and interpreting research stages.

From an epistemological point of view, the study assumes that reality as we know it is constructed intersubjectivity through the meanings and understandings developed socially and experientially (Phillmore & Goodson, 2004). The social nature of this study assumes that experiences are subjective to the side view of everyone (Bergman et al., 2012). There are not two tourists experiencing the same situation even if they are placed in the same geographic location and time. Engaging Virtual Reality experience is not just a matter of technological features, it is also important to comprehend the profile of the person in order to provide the desirable experience (Stanney et al., 2003). For an interpretivist researcher, it is important to assume a subjective position (Markula & Silk, 2011, p. 204). Markula & Silk (2011) explain that understanding subjective experiences, which include thinking, feelings, and actions of those being studied in their natural context, are the aims of the interpretivist. Exploring the views of the dialysis participants regarding their thoughts, feelings as well as their experience within the tourism field is essential to comprehend and interpret their reality. As O'Dell & Billing (2005) described, experience is subjective, intangible, continuous and a highly personal phenomenon. Therefore, the researcher takes into accounts this description while exploring the experiences of the participants during the development of the research.

The progress of the research is based on a dynamic process working back and forth between the theoretical framework and the research question. This movement was necessary to better understand the character of the subjects and the essence of the whole experience. Also, gaining knowledge by undertaking the realities of the individuals who are being considered in the investigation. This method leaded to an interaction between concepts and subjects allowing the researcher to move progressively though the thesis going back and forth linking theory and realities to a whole experience construction. The illustration below summarizes the dynamism of the process:

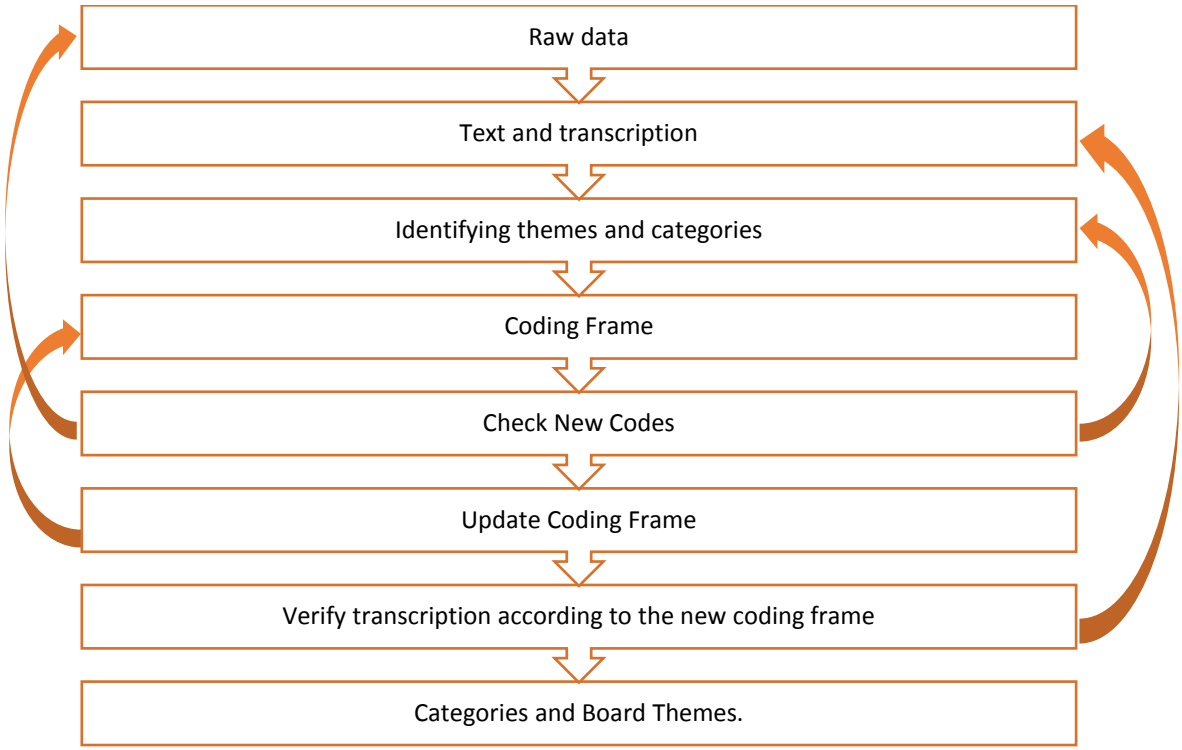
Figure 7: Dynamic scenario reflecting the procedure followed during the study



Source: Own elaboration adapted from Levent & Alexandros (2008)

This way to proceed contributes to the interpretative method offering to the researcher a whole picture of interrelated knowledge. This approach gives the opportunity to the researcher to constantly review concepts and facts becoming more familiar with the entire progression. At the beginning, the researcher started getting familiar with dialysis department and the meaning of travelling from the perspective of these participants. Also, by approaching to other stakeholders such as nurses or hospital managers, the researcher got a whole picture of different realities which needed to be interpreted. Going back and forth between theoretical framework and the main research question, tourist experience for dialysis was reviewed. Further, contact with participants was established to dig into their heuristic dimensions. The study adopts inductive approach for analysis of qualitative evaluation data (Baxter & Jack, 2008). The raw data (transcriptions, observations, text…) were read repeatedly allowing the interpretation of the researcher regarding the conceptualization of the themes. The research procedure detected personal traits and thoughts about the subjects and their tourist experience considering possible meanings and how these possible fits within Virtual Reality context (Silverman, 2004). On the basis of an interpretation of collected data, such an approach is performed within a back and forth data analysis movement to guarantee its accuracy.

Figure 8: Dynamism of data analysis process



Source: Own elaboration adapted from Silverman (2004)

Although this study is manly inductive, the research question seeks to find the meaning of tourist experience and sense of presence to better clarify its general domain in order to obtain knowledge about the individual case (Bryant & Charmaz, 2007).

3.2 Research Methods: A qualitative research

The investigation is grounded in a qualitative research to better understand the feelings, thoughts and emotional experiences of dialysis tourist. Because of its in-depth nature, a case study design what chosen (Yin, 2003).

Yin (2003, pp. 13–14) defines case study as:

1. Investigates a contemporary phenomenon within its real-life context;
2. When the boundaries between phenomenon and context are not clearly evident;
3. Copes with the situation in which there are many more variables of interest than data points;
4. Relies on multiple sources of evidence, with data needing to converge in a triangulating fashion;
5. Benefits from the prior development of theoretical propositions to guide data collection and analysis.

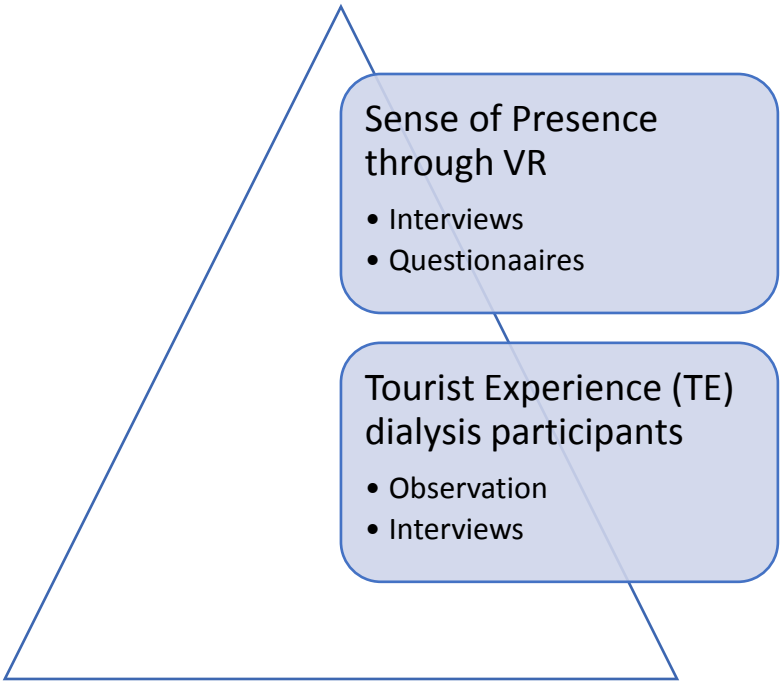
Yin (2003, p.3) also recognize case study as not only exploratory research and states (2003, p.13-14) that: "...the case study strategy should not be confused with qualitative research...case studies can be based on any mix of quantitative and qualitative evidences. In fact, the use of a variety of types of data and types of data analysis can be said to be a key feature of the case study method".

The investigation is based on a single case study divided into two primary data collection levels. On the basis of the nature of the research, the multimethod perspective of the case study design allows the researcher a deeper exploration of the research problem treating the subject from a multiple point of view (Yin, 2003). Also, it supports the reliability and validity of the results. Consequently, each level is based on two qualitative research methods to collect primary data.

The first level is related to tourist experience for dialysis. This stage is based on two data collection methods: observation, interviews (Silverman, 2004). The aim is to better understand the relevant components attached to the meaning of tourist experience for this specific target.

The second level of this case study aims to explore how enabling the sense of presence through Virtual Reality may provide a key to achieving a tourist experience for these participants. Correspondingly, interviews and questionnaire were applied (Silverman, 2004). The figure below summarizes the data collecting procedure followed by the researcher:

Figure 9: Primary Data Collection: Methods.



Source: Own elaboration (2017)

As previously mentioned, the study is constantly well-thought-out through an interactive process going back to both tourist experience and sense of presence illustrated in the theoretical framework (Fig.6). The interactive nature allows the constant interpretation of how their day to day is perceived, how is related to their tourist experience and how this may affect the capacity of empowering sense of presence through Virtual Reality and its whole possible experience. The reason for choosing this complex methodology was, considering the goal of the study, to get a more comprehensive exploration of the possible application proposed by Guttenberg (2010). Far from taking his words as a simple suggestion, the case study aims at exploring if disable people, in this case dialysis tourists, may achieve an intangible tourist experience based on the potential of Virtual Reality technology.

Because of the one exploratory case study examined, the method does not seek to produce findings that are generally or universally representative. However, it can generate valid propositions relating to theory and policy issues (Veal, 2006). In particular, it considers alternatives to reach a tourism experience and confirm one of the suggested applications in Virtual Reality.

3.2.1 Dialysis tourist experience level: interviews and observation

During the data collection process, the researcher had full access to dialysis department. Previously to the interviews, the investigator could observe the procedure and dynamism of dialysis treatment. To reach the goal established for this first level, it was necessary to access participants with previous experience in travelling within dialysis. With this aim, the researcher contacted Ans van Selst, Holiday

Dialysis Coordinator from Máxima Medisch Centrum (Velhoven). To accomplish a multiple point of view about the same phenomenon, tourist experience, other two dialysis participants were interviewed.

3.2.1.1 Interviews

This stage integrates three semi-structured interviews. All three were conducted to investigate the meaning of tourist experience for tourist who need dialysis treatment. Following the explorative nature, semi-structure interview method was used to dig into facts, attitudes, values, beliefs, and motives towards their tourist experience (Campos et al., 2015). Although following predetermined questions based on the theoretical framework and previous knowledge about the subject, the interviewer could adapt to the conversational flow omitting or addition other type of questions (Phelan & Kinsella, 2012).

Ans van Selst, Holiday Dialysis Coordinator from Máxima Medisch Centrum (Velhoven) was asked about her experience in the field. The main aim of the interview was to understand the process of planning a vacation for dialysis patients and possible challenges faced. Based on the information gained through the interview with Ans van Sels, the researcher developed future questions addressed to dialysis patients. Afterwards, two other interviews were established with two subjects who had a previous tourist experience before dialysis and also, while having dialysis. Both participants could speak openly about their personality and give their opinion regarding their tourist experience. All three interviews lasted approximately half an hour in duration and were conducted in English. Interviewers were informed about the research and its objectives and asked them permission to record the interview. All the interviews were performed in the dialysis department at the Máxima Medisch Centrum aiming to keep a coherence regarding the place and the whole environment.

3.2.1.2 Observation

Observation technique is part of descriptive research. Having an overview of the department and the general treatment allowed the researcher to take into account elements of the context and the interaction during the treatment routine. The aim was to better understand the meaning of the situation which could influence the state of mind of the patients during their treatment routine, as well as outside of the hospital. For this reason, I took notes for two weeks (including Saturday). I attended mornings and afternoons treatments to observer the possible differences in the department. I was also testimony of the trip management process of one of the patients (see Annex 2).

3.2.2 Sense of presence and Tourist Experience through VR: interview and questionnaire

During the data collection process, fifteen participants were randomly selected. However, participants who were in the hospital during the procedure made the sampling relatively purposive (Palinkas et al., 2015). Informants also had to be able to speak and understand English, Dutch, or Spanish and they had to do their dialysis treatment at the hospital. Thirty people from the total (130) are doing their treatment at home.

3.2.2.1 Interview

This second level integrates semi-structured interviews as the most suitable research technique to answer the exploratory question. Therefore, fifteen participants in the ages between 30 and 95 years old were interviewed. Although it did not find important differences between genders, it appeared to be relevant the amount of time in dialysis treatment. Those who had more than two years within dialysis faced differently the whole life experience. It is primordial to understand the meaning of the treatment because it has a straight effect on their day to day life. This means daily activities of these participants are constrained to the routine and therefore, a touristic experience becomes part of the challenges they need to face. These participants can be checked in the appendix (X) including their age, gender, distinction between early dialysis patients or over two years and their interest in Virtual Reality experience.

Participants were interviewed aiming at gathering more knowledge about the personal traits and thoughts related to their day to day life combining dialysis treatment. The last part of the interview was related to their tourist experience. The age of majority was above fifties. To date, Máxima Medisch Centrum (Veldhoven) has 130 dialysis patients. Experience enables the researcher to know when to move back in the interview to obtain additional details. Also, when to move forward in the narrative into new area. The abilities of the researcher, influences the quality of the data and ultimately the number of participants: the better the data quality, the fewer the number of interviews and participants required (Bryant & Charmaz, 2007, p. 230). However, besides these skills, the research had to take into account other elements. The language barrier (Dutch) made necessary the use of a professional translator to carry on the interviews and ensure the flow of information. The translator also had to do the Dutch transcriptions and translation to English. Some of the patients spoke native English or Spanish which allowed the researcher to carry out the interviews. Time was another limitation which influenced the number of participants. The researcher had limited time to use the professional translator as well as to have access to the subjects. This fact assumes that further research needs to be carried before generalizing the results.

The reason of choosing semi-structure interview technique relies on the need of identifying thinking patterns and opinions in order to involve people in the Virtual Reality experience. As it was mentioned in the theoretical framework, enabling sense of presence is not just matter of technology (Najafipour et al., 2014). The engagement is produced when the experience has a correlation with the interests of the person. Consequently, when the degree of engagement is high the sense of presence is easier to be achieved (Campos et al., 2015; Diemer et al., 2015; Seth et al., 2012). Constructed on this main idea, interviews became completely necessary to figure out the way of enabling the sense of presence besides technological features. Based on the information gather on the first round of interviews as well as the theoretical framework proposed (Fig. 6), the elaboration of the interview guide was established.

While going through the interview, the participant could not relate the research approach to tourism field. The objective was to avoid influencing the responses of the people or inducing their thoughts. The research aimed at providing completely freedom of thoughts. A second objective was to figure out their preferences regarding experiences taking into account their physical restrictions. All this process was necessary to determine what would be the best Virtual Reality content to provide to patients. Nevertheless, after having experienced the Virtual Reality technology each participant was informed about the propose.

The interviews took between 20 to 30 minutes which were recorded with their permission. The interviews were conducted in English, Dutch and Spanish depending on their preferences. At the end of the interview they were asked if they would like to try something different during the treatment routine related to Virtual Reality technology. It was explained the meaning of such a technology.

Participants 6, 11 and 15 did not want to try the Samsung Gear VR glasses. From 15 participants who were interviewed at the beginning, 13 were willing to experience the new Virtual Reality Tourist Experience insights in their routine.

In line with the research process and before stepping up into the last method, transcriptions and translations had to be interpreted and analysed in order to choose the most accurate Virtual Reality content. On one hand, it had to fulfilled their travel needs. On the other hand, the VR composition had to have a good quality resolution, attractive design, and interactive elements into its composition. As it was pointed out, this stage is crucial because it might depend the degree of engagement with the VR experience. According to the theoretical overview (Fig. 6) this would have a straight effect on the sense of presence variable and therefore, the perception of tourist experience.

Yin (2003) says that data analysis consists of "examining, categorizing, tabulating, testing, or otherwise recombining both quantitative and qualitative evidences (p.109). Following the objective of the research, data analysis starts from looking for patterns in data, determine meanings and construct

conclusions (Silverman, 2004). Content analysis was performed whereby the data collected at interviews and observations as well as the questionnaire evaluation. This is a unique method that has both a quantitative and a qualitative methodology and can be used in an inductive or a deductive way (Bengtsson, 2016). The analysis process went back and forth through all transcription identifying theme and categories based on the attributes illustrated on the theoretical overview (Fig. 6). Sections of interview text and observational notes were coded enabling an analysis of the interview segments on a particular theme, the relationship between themes and the identification of themes important to participants (Fig. 8). Because of the triangulation performed to collect data, this method satisfies the purpose of the research guaranteeing its reliability and validity (Bryman, 2016). Every subject was codified from 1 to 15 in order to guarantee their privacy.

3.2.2.2 Questionnaire

For the last collecting data method, the same subjects were studied. Once discovered which type of experience fitted better with their personality, interests, and desires, participants put on the Virtual Reality Samsung Gear glasses.

Participants viewed a 360 VR Africa Safari experience (3 minutes 25 seconds) created by Immersive Media for Gear VR platform. Assuming that sense of presence is enabled when both technological and phycological sites are involved (Mihelj et al., 2014), this Virtual Reality content had an emphatic design close to the values and desires expressed in the interviews. Participants could look around and virtually experience the exotic environment. A different place allocated far away to the dialysis department, observed from different perspectives which allows the perception of three dimensions. The constant movement of the user through the content provides a tour in the natural environment. Elements such as eye contact, interaction with local people and the energic soundtrack guiding the all whole story are some of the attributes that made this 360 VR video matching with the characteristics pointed out in the theoretical framework. These are elements which enhance the degree of sense of presence. As Mihelj et al., (2014) pointed out the technological perspective, the environment, and the interaction where key points in the experience design to connect with the user. The same terms but in tourism experience help to create memorable experiences for tourists (Campos et al., 2015).

The data collection of the reactions regarding Virtual Reality experience took place between 6th April and 9th of April. Participants could put on the glasses during their treatment routine and expressed their opinion afterwards. While providing the glasses, patient 13 was not able to use them because the quality of the content did not adapt to participants' visual needs. Consequently, eleven patients from a total of fifteen tried the Virtual Reality experience and answered the questionnaire.

After showing the 360VR experience, they expressed their thoughts about it. In addition, the researcher distributed a questionnaire which the participants had to fill out. The questionnaire was developed based on the theoretical framework proposed (Fig. 6) to measure the achievement of a tourist experience through Virtual Reality technology. Using Ms Office/Excel software, the answers were analysed. The multidimensionality of variables provides an overview of the whole experience.

The questionnaire was constructed by adopting items established in the figure 6 regarding environment experience, immersion, interaction, feelings, sense of presence, and overall experience. All questionnaire items were presented in a Likert scale from 1-7. Instead, the scaled analysis used to measure the results was established from -3 as the most negative to +3 as the most positive answer. Thus, 0 becomes the neutral value. The use of this scale is to easily recognise the differences and similarities between answers. (See questionnaire in the Appendix 4).

The forms were designed in English and Dutch languages to avoid possible uncomfortable situation and keep the naturality.

Concluding, the researcher interviewed a total of eighteen people during the collection of the data. The research is not based on statistical significance but to discover the insights related to their tourist experience and the possible attributes attached to the filed which can allow sense of presence through Virtual Reality. Despite the small number of informants, the triangulation-method generates depth knowledge about the elements contributing to their tourist experience which can be applied to increase the sense of presence. This consisted on two separated levels, one focused on dialysis tourist experience and the other one addressed to investigate if sense of presence through Virtual Reality may be a key to achieving tourist experience.

4. ANALYSIS AND INTERPRETATION

The research aims to empirically explore the role of sense of presence in tourist experience through Virtual Reality. In the theoretical framework was introduced the main items of tourist experience and the meaning and process of enabling sense of presence. Based on the overview model (Fig.6), the analysis is divided into two levels (Fig.9). The first level of the analysis explores the meaning of tourist experience for dialysis patients. During the interviews, all three participants (Holidays coordinator at MMC and two dialysis participants) provide their own experiences regarding travelling within dialysis context.

The second level analyses people's thoughts, needs and desires during their day to day as well as their travelling experiences and its concerns. This information allows the researcher to interpret their accounts and to provide the most suitable Virtual Reality experience according to their needs. This analysis provides knowledge about their emotional aspects which are highly related to the sense of presence- In the second part of this stage, the Virtual Reality experience becomes the centre of the analysis by exploring the level of engagement regarding its experience within the tourist frame. According to the model proposed (Fig.6) the questionnaire is the main source of information but also supported by their comments during or after the experience.

4.1 Meaning of tourist experience for dialysis tourists.

In line with the research, the meaning of tourist and tourist experience has been reviewed. As mentioned at the beginning of the theoretical framework, people depart and return from their habitual place aiming at escaping temporary from their daily routine (Patiño et al., 2016). A cooperation between physical, social, and organisational factors induce the active and interactive participation of the tourist co-creating experiences (Campos et al., 2015).

Ans van Selts, Holidays Coordinator of the Dialysis Department, identified the constant routine of dialysis patients as one of the most challenging experience that dialysis patients have to face every day. Their week routine involves twelve hours treatment. They must be at the hospital three times per week four hours per day. This fact leads to consider time and proximity as two conditioning variables that they always need to take into account in order to keep alive. As noted in section 2.1 in the description of the anatomy of the tourism phenomenon, its notion shapes the same variables to reach escapism from the daily routine. Thus, for tourist with disabilities, time and proximity are factors that may constrain the travel experience. From the perspective of the patients, planning a trip also became more challenging rather than a simple enjoyable process. Their feelings contrast between the need of evasion from the same routine and the fact of being constantly in the hospital (Selts, 2017) but also the anxiety experience during the whole process. Both participants identified that issues such as:

- The new environment of the hospital;
- The fact of depending on a taxi to get there;
- The probability of getting tired after the treatment implying the impossibility of carrying out the activities planned;
- And above everything, the new staff.

These were issues constantly repeated making them feel anxiety and fear during the overall process of a tourist experience. Notwithstanding, dialysis patients want to travel. In 2015, 30 patients from 130 patients in total travelled. In this scenario, most of the reasons to travel were related to leisure, meeting friends and family (Selts, 2017). The consumption of tourism is mostly related to recreational and experiential mode (Cohen, 1979). As patient A said *"I just want to lay down next to the swimming and enjoy the sun".*

According to the statistical information provided by Selts (2017) and the experience of the two participants shared during the interview, Spain, the Netherlands and Germany were the most visited countries. The good weather factor, in the case of Spain, and the proximity factor, in this case Germany or the Netherlands play a big influence in their choice. As participant B said, *"I can get in my car and drive from A to B. However, tomorrow I need come back because I have to be in the hospital again".* Other destinations on the list were Curoçao, Austria or Italy. However, all three-interviewees remarked on the complexity of the planning process to organize such an experience. They agreed on the fact that planning a trip is a difficult task to manage and implies a lot of effort and time consuming. Each of them ended up indenting the same issues:

- "They are restricted to the availability of dialysis centres in the destination wished (Ans)";
- "It's a difficult process (P. A)";
- "Planning a trip takes a very long time (P. B)".

In this regard, the use of technology embraced new facilities to enhance the organisation of the holiday. Patients can consult information about possible dialysis centres in the destination wished, they can contact other dialysis patients in forums, blogs and other social networking to interact and get advices about possible concerns, etc (Patient B). According to Selts (2017) there are three official alternatives to join a travel experience:

- They can organise a trip by themselves (15 people in 2015);
- Every year the hospital organizes a trip which means group vacations;
- Nierstichting Nederland, the Dutch Kidney Foundation also organises trips.

Patient B made a clear difference between the fact of organizing a trip by himself or going with the hospital group *"The woman behind me goes every year with the hospital organization. The same nurses*

from here (the hospital) go with them so it is not that difficult for her as for me going by myself to Ibiza". In their state, the interactive dimension (Bello & Etzel, 1985) is essential to ensure safeness and comfort dimension. To understand these dimensions, the relationship between the type of experience and the type of tourist profile (individual traits) have to be considered since are defining the nature of the whole involvement (Wearing et al. 2009). As it was pointed out above, social factors such as language barriers also become part of constrains. Participant B states that it is not the same feeling to practice Spanish asking for "sangria without ice" in a bar because it is part of the experience, then feeling the need to understand the Spanish nurses because of their treatment. Human interaction such as nurses vs barman in combination with situational factor (eg. hospital vs. beach), physical experience (standing vs. running) and individual characteristics (fear vs relaxing) co-create the whole tourist experience (Campos et al., 2015).

"The process requires patience", says Selts (2017). Its complexity remains during the all process; from preplanning, while doing the trip and also, coming back from it. For Selts (2017), the management of the dates according to the requirements of the patients and the availability of the guest-centre are issues necessary to deal with to guarantee the maximum enjoyment of the holiday conferring their desires. This becomes even a more complex task due to the language barriers. For instance, Spanish centres communicate in their own language leading to a necessity of translating important medical requirements for the dialysis treatment of the patients. A significant responsibility to ensure the well-arrangement of the trip.

Table 2: Holiday management process for dialysis patients

Stages	
Pre-Planning	- Patient must inform about their wish of travelling at least six to eight months in advance. - Once decided, they need to ask for permission from their doctors. - Once it's accepted, the coordinator of the holidays is informed in order to organize a place to get the treatment. Sometimes the coordinator has to call more than one centre because the space on dialysis may be limited. - The visited centre has to approve the request. - A medical report with all the information needs to be filled in. - When the medical report is complete, the patient has to sign it together with the responsible doctor of the patient. - Then, the coordinator gets in touch with the dialysis centre and confirms an appointment.

	- Meanwhile, the social worker also needs to write a personal letter to the insurance company. The patient has to receive an official letter from the insurance confirming the coverage.
Trip to / Participation	- When the patients get all the confirmations, they can book the holiday. - Bring their own medicines and all documents required. - Wait for the taxi to go and come back from the hotel to the hospital.
Post-trip	They need to check the bacteria in their nose.

Source: Own elaboration

Patient A spoke a lot about his previous trips experiences: *"I have been traveling a lot. China, Brazil, India, Turkey, America, Mexico, Yugoslavia, Vietnam... When you work hard you can go on holidays. I just have one life so you have to enjoy it. But with dialysis that's not possible. After dialysis people are tired. Also on holidays, so I take my rest. I can't do anything after dialysis. For me, a trip with dialysis is not possible anymore".* A correlation about proximity variable was made. All three interviewees mentioned that a trip with dialysis is "short". The destination list of Selts (2017) mentioned Curoçao as the farthest place. Because it is a Dutch island, the complexity of the trip organisation is considerably lower. In addition, the language barrier does not exist. Both patients interviewed travelled to Germany or the Netherlands for two days. Longer trips require the bureaucracy process.

The situation illustrated by these interviews reveal a different meaning in the tourist experience. The whole process become more complex where factors such as distance, time (specially planning management and duration of the trip) and availability of dialysis centres are the main constrains influencing the entire experience. Despite, it has been recognized potential technological advances which can compresses time and space affording the interminability (Gretzel and Jamal, 2009). Therefore, when people interact with these new channels, it creates sensorial feelings stimulating the creation of experiences (Holbrook & Hirschman, 1982).

In line with tourism examples provided in the section 1.2.3 (p.10-11), if physical movement is complex to reach, a combination of technological devises and sensorial stimulation might offer a new way to escape into an intangible touristic environment. In accordance to the analysis it has been identified a need to getting out of their treatment routine *"we can make a problem of this or we can accept it. I accepted it. The second time I was here I realized I have no option. I have to come. And I make the best of it (P. B)".* Also, the desire of travelling far away from the centre (McCabe, 2005) aiming to achieve an escapism which can lead to a memorable experience (Pine & Gilmore, 1998).

This research considers a new dimension of space to facilitate the enjoyment of a tourist experience by appealing to Virtual Reality and its sense of presence effect. Although the majority of the tourism definition consider space of tourism tangible, there are less physical substance spaces where a tourist experience can be perceived (Harrington, Jones, & Markham, 1998; Slater & Sanchez-Vives, 2016; Wearing et al., 2009). Hence, the study contemplates the statement of Slater & Sánchez (2016) where acknowledges that Virtual Reality technology delivers experiences that give rise to illusory sense of place and an illusory sense of reality and relates this idea to a further objective: to achieve a tourist experience by enabling the sense of presence.

4.2 Sense of presence through VR: achieving tourist experience

4.2.1 Personal characteristics of the participants: phycological site.

Following the nature of the first stage (section 4.1) and based on the knowledge gained from the theoretical framework the researcher could recognise that dialysis treatment leads to a routine 100% necessary to follow (Selts, 2017). This treatment routine has deeply consequences in the trip organisation, its management and the whole meaning of tourist experience.

The first requisite to consider while co-creating a tourist experience through Virtual Reality technology is the personal aspects of the participants.

As suggested in the overview model (Fig. 6), there is a connection between the elements forming a tourist experience and the ones creating a Virtual Reality experience. Tourist experience is based on situational factors, physical experience human interaction and individual characteristics (Walls et al., 2011). On the other side, Virtual Reality experience is based on virtual environment, sensory stimulations and internal predisposition of the person (Mihelj et al., 2014). On both sites, understanding individual characteristics are essential to comprehend in order to establish the engagement wished. Sense of presence is highly dependent on the degree of engagement with the action (Slater & Wilbur, 1997; Steuer, 1992). In consequence, the personal aspects of the participants became essential to identify in contemplation of reaching sense of presence. In line with these facts, participants could feel that they are in another place different if there are mentally predisposed and the possible content reflects their interests (Mantovani & Castelnuovo, 2003).

Dialysis has a straight effect on their personal characteristics and the way of thinking, acting, and facing day to day life. Their main routine relies on waiting for the taxi, going to the hospital, injecting the needles, waiting around four hours if everything goes well, waiting for the taxi and going home (Selts, 2017). Participant 15 pointed that “from a busy life, something happened and you can't continue doing the same things”. Despite of the time it takes to assume this routine (for each patient a different amount of time), they try to get old habits again.

"After the horrible period, I just passed it and I went through it well. To date, it goes pretty well that I even think about holidays (P.15)."

The participant refers to holidays as a way of escaping from his routine (Bello & Etzel, 1985). As it was seen in Pine & Gilmore model (1989) escapism is achieved when active participation and immersion into new scenarios. Participants who already have dialysis for years try to keep themselves busy by appealing to social interaction (family, friends, or social activities), making appointments, volunteering or trying to keep working besides dialysis. However, for those who just started the treatment did not exist a routine yet (P4. P5. P10). They still had to adapt to the meaning of their new type of live.

Generally speaking, participants wanted to have a busy and active life. Family, friends, and being dynamic specially by doing sports where the three main answers. However, due to their condition, they considered dialysis as a limitation to carry their interests. As P5 states, *"I used to be active but that's not possible anymore."* P4 who just started the dialysis and the impact of this new situation was 100% in his mind said *"Things have changed a lot. We used to do a lot of travelling. But know that is not possible because I am here 3 days per week."* Most of the participants tried to keep positive and defined themselves as optimistic.

Their constant routine does not allow them to spontaneously travel around. As it has been analysed in section 4.1, organizing a trip for dialysis is a complex process. The fact of travelling somewhere else where the language is not the same, changing the hospital environment, the new nurses or just waiting for the taxi are factors that participants need to deal with in order to get their vital treatment. Consequently, the tourist experience has its psychological challenging path. As the definition claims (p.20), the co-creation of a tourist experience is defined as the sum of the psychological events a tourst goes through affecting their physical and mental participation (Campos et al., 2015).

On the other site, six of the participants affirmed that dialysis interviewed in their working life (P1. P2. P4. P9. P14. P15). This lead to a long procedure of adaptation the working condition to the new circumstances. The biggest change is their lack of energy after the treatment routine. Six of them specially highlighted this inconvenience (P2. P3. P6. P8. P14. P15). People who did not have a routine could not answer some precise. However, the working aspect it became the main issue. Rarely, dialysis people can continue working in normal conditions. Even having their own company, changing may be made. *"I am working there on the site line because heavy work I can't do anymore but organizing I am able to do it."* (P15). Dialysis takes a lot of time. Because of that, some of them are training to carry the treatment at home. *"The most annoying thing is that it takes so long and I have to be here. Time is money. Know I am being trained to do the dialysis at home."* (P9). P4 concord with this statement *"I would like to change the type of dialysis to the one you can do home".*

In accordance with these statements, the timeline of their day to day has been affected by distinguishing between "before dialysis" and "after dialysis". Working and sporting became the main "before". P10 mentions *"I loved to play soccer but at the moment I don't have any hobby's which I can practise."* P4 adds *"Before dialysis it was primary cycling and doing the stuff that the kids. Football, climbing and Irish dance. The week nights are Irish dance and football."* P15 said *"Now there are not a lot of hobbies I can do because of the kidney. Before was a lot of sports (tennis, golf). Still things I can do but it's more difficult."*

Active is one of the arrows of escapism dimension (Pine & Gilmore, 1998)However, within dialysis the freedom of being active is relatively low. Their interests and their physical and emotional condition confronted. For instance, there is a long list of hobbies identified such as reading, gaming, walking, knitting, reading, make puzzles, drawing, building a miniature boat, or spend time with animals. The level of physical energy necessary to carry these activities is lower and became part of the "after dialysis" timing.

The process of gaining knowledge about the type of activities that they are currently doing and compering them with their desires and wishes, enables the researcher to go through the decision-making process regarding the election of the right Virtual Reality content according to their expectations and needs. As the model illustrates (Fig. 6), sense of presence is enabled by the use of technology but also, a big part of this interaction relied on the subjectivity of each person (Campos et al., 2015; Sadowski & Stanney, 2002). However, while asking about thinkable desires, it has been identified that none of the answers had unrealistic wishes. The process of generating unrealistic desires put participants in an uncomfortable position. In that vein, all of them rely on the same patron: going back to the old habits. Doing what they used to do. The answers could be divided into two main groups: 1) going back to work (P1. P2. P4. P6. P9. P10. P14); 2) travelling (P1. P3. P4. P7. P8. P13. P15). P1 wanted to go back to his routine working life as well as his spontaneous travelling moments.

Their wishes and desires are interrelated to physiological state. To connect experiences with people is important to dig into their emotional site. As Holbrook & Hirschman (1982) emphasises, personal occurrences with highly emotional significance co-create experiences. Dialysis has a straight effect on their life as well as their state of mind. Despite of the difficult situation, they try to approach it positively and make the best of it.

As it was mentioned during the theoretical framework, feelings are internals influencers appealing to the tourism attentions to raise *expriencescape* (Campos et al., 2015; Pine & Gilmore, 1998). Therefore, investigating this internal influencer, became one of the aspects that needed to be identified. If people do not feel recognise with the experience offered, the engagement process fails. When participants

were asked about their feelings, their answer was almost unanimity. Participant 8 was the only person who answers positively to this question. The other fourteen patients felt "nothing". Some of the sentences used to describe their feelings were: *"I try to feel nothing. Robot mode."* (P2). *"I don't have any emotional feelings apart from monotony."* (P10). The synthesis of the question relies on the terms "monotony", "nothing", "neutral", "everything is the same", "anxious", "emotional", "angry".

The process of adapting to such a big change in their life is complex. People need support and phycological help to keep going. Some of the participants mentioned that lots of people who are dialyzing do not *"see the light through the tunnel and they put end to their life"* (P1). Contrarily, the external influencers specially involving the dialysis department environment, the treatment and their social interaction during their stay made that all 15 participants agreed on the level of satisfaction regarding their stay and treatment at the hospital. Co-creating experiences, virtually or not depend upon both external and internal influencers. The level of interaction and participation combined with the knowledge of the whole external influencers revel their capacity and predisposition to allow the incorporation of new insights. Understanding their thoughts and the meaning of the treatment experience provide a change to gather more information about their interests, needs and feelings. As stated, this information is highly relevant to find the best way to connect with each of them. To ensure the well-development of the research is necessary to perceive their needs and to discover their expectations and desires.

Interaction is one of the important elements for these participants. Most of them emphasis nurses as one of most important elements during their stay there. They can keep a conversation, making jokes, and remove the possible tension. They make a more comfortable atmosphere. It is also helpful to be surrounded by people who understand the situation and who you can talk about the circumstances. Helps to unburden. Thus, social interaction is one of key elements to bear in mind when offer new experiences. Further, patient 9 and 14, who already are in dialysis for more than 7 years consider they stay too long. "Too long. That's why I want to have freedom to do the dialysis when fits me better." (P9). Changing the notion of time and space to a more dynamic dimension would benefit their attitude towards the whole experience.

Participants were asked about positive or negative things during their treatment that they would like to share and emphasis. The fact that this process is necessary to keep alive, made them think that the existence of such a treatment was already the most positive idea that they could think about it. However, other attributes such as room location, time, costs of energy, needless or waiting for the taxi, make the experience negative. These are important qualities to bear in mind because affect the whole tourist experience. Despite the positive attitude of the participants, the routine has stages which they

need to go through every time they are there. The stay in the hospital is enhanced by the nurses. This is remarkable because participants (P1. P3) pointed out that their experience will be negative if the nurses would be in a bad mood. Consequently, the staff became an essential part of their routine life. The fact that it matters, makes them feeling positive even knowing the negative site.

When participants were asked about their opinion regarding their treatment in MMC, everyone had a positive answer. Nonetheless, when patients were asked about their own state of mind, there was no specific answer rather than "not particular feeling". Most of the participants defined themselves as positive people who tried to face this challenge in the best way. Despite of that, the real circumstances and the same routine have a straight negative on their emotional site.

One of the aims during the investigation of their personal aspects was to discover if there was something that could be provided to enhance their stay in the hospital while they are carrying the treatment. Once again, the answers reflected an important lack of willingness to think beyond reality. Using their imagination while having such a complex reality seemed difficult to reach. Most of them emphasis time. Time should go be faster (P6. P8. P9. P13. P15). Patient 15 proposed to have available a dialysis device to avoid depending on hospital as a location point. This is one of the main restriction they have to carry on a more regular life.

At this point many issues have been identified regarding their personal aspects. There is a routine which confronts time and space variables. They want to be as constant as they can with their workable routine but also, spontaneous and having freedom of choice concerning their actions. This way of thinking has a straight effect on their attitude towards their tourist experience and their whole perception.

4.2.2 Personal characteristics of the participants: tourist experience

The importance of the personal insights of the participants and the meaning of dialysis in their state of mind can be recognised in their attitude towards their day to day scenario. In relation to the model proposed (Fig. 6), stimulating tourist experience through virtual environments is a mix of interaction between not just technological but also personal aspects. Virtual Reality experience is not the immersion of the body in the content but also, the emotional involvement (REF). Hence, at this stage, a whole picture of their emotional needs and desires provides a more accurate idea about which type of content would better engage their mind and therefore, allowing the sense of presence.

Besides, tourist dimension must be analysed to better comprehend which environmental, social and interactive elements might allow possible attachment within the experience so participants can identify themselves inside the action (Campos et al., 2015). With this aim, previous travel experiences have been assessed.

More than half of the participants situated their trip experience before dialysis (P2. P3. P4. P5. P6. P8. P14. P15). The perceived attitude towards life experience correlates "before" and "after" dialysis. Participant 14 explains that dialysis is the reason he does not travel anymore. During the previous analysis it was established the same "timeline" affecting their daily routine. Also, participant 15 says "The last two years we were afraid to go on holidays". This indicates that they are negatively affected specially at the beginning of the adaption process. Feelings contrast with their wishes. Others travelled during dialysis but they had national trips or they went to the neighbours' countries such as Belgium or Germany. Time and proximity, the main two variables of the definition of tourism (Mathieson & Wall, 1982) are constrains for them. "*Last trips were during dialysis and that trip was just in Holland because I'm afraid to go somewhere further away."* (P12). Participants who had trips during dialysis identified Spain as one of their main choice due to their dialysis centres available. As Selts (2017) pointed out, despite being a complex process, patient still want to be tourists. Participant 4 is a unique case. The meaning of his job relies on travelling around the world and doing business. Besides, all his family was identified as tourists' lovers who travelled around Europe constantly. When he was asked about the biggest change in his routine because of dialysis, the automatic answer was travelling. As noted by McCabe (2005) people travel to escape from their centre. However, for this participant travelling means a way of escaping from his routine but also is just part of his day to day. The biggest limitation in carrying this activity became dialysis. Participant 12 says *"We used to go very often. Vacation time is a time to drop everything and go somewhere else."* Likewise, participant 4, who travelling means a style of life (Gretzel & Jamal, 2009) points *"Last year we knew dialysis was happening so we asked kids, where do they wanted. We went to rock-climbing.* The previous section 4.2.1, conclude that one of the most important characteristics for these participants was the freedom of choice regarding their mobility. Participant 4 was aware of the limitations of dialysis constraining their tourist experience. Participant 14 commented that before he used to travel a lot. *"I was in Navi, I visited almost all countries in Europe with the Coastline. This was for work. I also travelled for pleasure through Yugoslavia. I was in Egypt and in Ruanda before the war. I was a missionary."* According to their testimonios, the various forms of travelling used to also imply working life. This concords with the separation that has been made in the previous analysis where work and travel where the two main activities that the participants wanted to be able to do. Additionally, the distance of the destinations mentioned, go beyond domestic travelling looking for exotic resorts to involve themselves actively and interact with the environment (e.g. I was a missionary).

Back to tourism dimension, the main push factors identified are the desire of escaping from the routine, novelty seeking, rest and relaxation and adventure seeking. Regarding pull factors, exotic nature resources, family living in the destination chosen and weather are the three main reasons

(Klenosky, 2002). Though, proximity and availability of centres are two of the main condition that participants take into account regarding travel experience. Closely linked to these conditions, most of the informants wished to increase the distance of their travels. Thirteen participants except P7. and P11. want to travel far away from their society centrum (McCabe, 2005). They mentioned countries such as Mexico, Gambia, China, Australia, Colombia, or Russia. Others who considered their dream trip still a possibility to achieve inside of their reality mention places in Europe such as Lourdes, Spain, Croatia or Switzerland. Each of them had a completely different interest. Some want to repeat an experience they had in the past (P2. P3. P4. P10. P15.). They remined attached to the characteristics of those places. Others want to accomplish a destination never reached before (P1. P5. P8. P9. P12. P13). They are seeking novelty (Bello & Etzel, 1985). Patient 6 exposed her feelings saying *"I am too scared to dream. I go on holidays to Benidorm in some days and I am really nervous."* Dreaming is a natural way of achieving things; a way of transforming imagination into reality. People who do not allow themselves to let their imagination run free due to their complex reality, extra motivation is necessary to be applied (Y.-C. Huang et al., 2010) Virtual Reality experience can stimulate their senses (Witmer & Singer, 1998) and inspire their imagination once they process the information and enable their sense of attachment with the experience provided. Active participants, interaction and immersion involves emotional involvement (Campos et al., 2015; Pine & Gilmore, 1998). Participant 6 felt scared and nervous. Her feelings were confronting with her need of engaging old habits.

There is a temporal process of adaptation (the time depends on each person) connected with the desire of an energetic life. Carrying activities such as walking, cycling and swimming were at the top list. These shared desires also involve social interaction. People want to go to the beach with their children (P4) or enjoying that dream experience with the grandchildren or family in general (P1. P2. P5. P7. P8. P11. P15).

In relation to their emotional travelling desires (Volo, 2009) and the possibility of offering new insight to satisfy their wishes, the participants were asked to imagine an ideal travel experience related to the possibility of escaping from the hospital (Bello & Etzel, 1985). All patients who had a clear dream trip, would it follow and make a reality of it. The lack of reality of the question made participants such as number 3 and number 8 to share the following statements:

"That is just not realistic. I wouldn't really know where I would go if it would be possible but I would go travelling. Driving through the nature there." (P3).

"I'm 88 now, so going to Lourdes isn't realistic anymore. I guess I would just go to the beach with my grandchildren. Taking more walks." (P8)

Likely, participant 10 as a first step, assumed the realistic condition to carry out such an unrealistic action saying *"If I would be healthy I would go in that direction (Australia). Travel around, walking and seeing the nature."*

These statements exemplify the desire for travelling far away, seeking novelty and diversity in their experience to compensate their routine (Bello & Etzel, 1985; Ritchie & Hudson, 2009). In terms of thinking beyond reality, some of participants felt uncomfortable because of their dialysis daily life. Constrained by distance and time factors (Volo, 2009), they are planning one day trip or going further to European countries where dialysis centres are available. However, they wish to be more active with "local" activities such as sailing in Switzerland or rock-climbing and interact more with exotic cultures and its attractions. For instance, Africa, Asia and South America were destinations with a significant emotional attachment whether because the idea of coming back or discovering unfamiliar experiences.

Taking into account the pull factors mentioned (exotic nature resources, family living in the destination chosen and weather) and the types of activities they are currently carrying on (reading, gaming, walking, knitting, reading, make puzzles, drawing, building a miniature boat, or spend time with animals) and the ones which they would like to do (playing soccer or travelling for longer periods of time) it has been selected a Virtual Reality content which can matched the preferences of the participants.

It was argued that sense of presence is highly dependent on physiological factors (Diemer et al., 2015; Sanchez-Vives & Slater, 2005; Slater & Sanchez-Vives, 2016). To enable sense of presence is necessary to contemplate both technological and individual sites (Mantovani & Castelnuovo, 2003; Seth et al., 2012). In that matter, semi-structured interviews provided a deep amount of information relevant to choose the best Virtual Reality content. Participants are interested in travelling. However, desires with a high degree of fantasy allocate participants into an uncomfortable situation due to their complex reality. Virtual Reality experience can stimulate their senses (Witmer & Singer, 1998) and inspire their imagination once they process the information and enable their sense of attachment with the experience provided.

4.2.3 Personal reactions regarding VR experience

The content chosen considered push & pull factors as well as dream experiences that informants expressed during their interviews. Therefore, natural resources and exotic environment far away from their usual habitat were important factors to keep in mind in order to connect experience and needs (Diemer et al., 2015). According to the theoretical framework (Fig. 6), this engagement would enable a higher degree of sense of presence to the participants (Slater & Sanchez-Vives, 2016), allowing the feeling of being somewhere far away from the hospital (Heeter, 1992; Najafipour et al., 2014). Indeed, a better quality of the experiences enable escapism. Pine & Gilmore (1998) stress the importance of delivering meaning and value in consumer practices. Quality is required to connect with the participants in a personal way to ensure overall satisfaction as well as generate a deeper emotional attachment (Chon, 1989; Wearing et al., 2009).

The experience provided in this research aimed at transporting the participant's psychology into a travelling system to simulate a tourist scene and thus, stimulate a tourist experience in a less physical way. Transporting their consciousness into an alternative reality (Sanchez-Vives & Slater, 2005). There is a different notion of time-space (Gerrig, 1993) where sense of presence through Virtual Reality might arouse the co-creation of a tourist experience. This tourist system can possible provide environmental presence and personal presence (Heeter, 1992) reaching escapism.

The design of the virtual environment (texture, colours, shapes, sound and other features were considered (Jacko, 2012). Once the glasses were provided, most of the participants had the tendency to describe the surroundings. Their expressions were full of surprise because of the new unexpected sensations. They were pointing around, smiling and wondering if the other people saw the same as them. The alternation of objects, people or changing the viewpoint of location stimulated the transportation of their mind (Mihelj et al., 2014). Visually attractiveness of the environment was score with an average of 2.09. The whole environment experience had an average of 1.89.

Participant 6 had a previous experience with the glasses. Her enthusiasm to try it again create a full engagement within the content. It was experienced some difficulties while putting on the glasses and adjust the quality of the content. When they were asked about possible improvements, the quality of the content was one of the most repeated issues. Similarly, participant 13 even curious and enthusiastic about the Virtual Reality experience, could not try the device due to the vision difficulties. The score of quality resolution had 1.55 in average. While participants found the content visually attractive and they could hear properly the audio, the quality resolution had a straight impact on their enjoyment. *"I couldn't really get a clear view."* (P10). For instance, if participant 13 would be taken into account, the score of the quality would have been lower. Slater & Wilbur (1997) identified immersion as the equivalent relation with the physics of the system. To include the perception of

feeling in the virtual world, natural interaction with the environment must be stimulated. The quality of resolution has a straight impact on the degree of immersion in the tourist African scenario.

Therefore, in the notion of immersion, 85% of the participants indicate positive that they felt like their body was somewhere outside of the hospital. As Markham (1998) stated that such an experience revels a state in which the mind separates from the body to be inside the machine creating emotional attachment. In this case within an African experience. Even though the way of perceiving time and space is different, people encapsulate experiences leading to value-creation (Prebensen et al., 2017; Wearing et al., 2009). The table below reflects the score of the whole immersion category.

Table 3: Results of Immersion

Immersion	P1	P2	P3	P4	P5	P7	P8	P9	P10	P12	P14	Average	
Body inside hospital	3	3	0	1	2	3	3	3	2	0	3	**2.09**	Physically moved
Had no control of body	3	3	-2	2	2	3	3	1	1	0	1	**1.55**	Had control of body
Average	**3.00**	**3.00**	**-1.00**	**1.50**	**2.00**	**3.00**	**3.00**	**2.00**	**1.50**	**0.00**	**2.00**	**1.82**	

Participant 3 and 14 travelled to Africa time ago. They had previous knowledge about the meaning and characteristics of such an experience. *''It looked like I was back in Africa again. I liked it very much. I felt I was next to everything. Felt like you can reach and touch them. It was very nice. I have a previous experience in Africa so looks like I was back in the reservation there''* (Participant 14). The engagement with the content expressed by the participants could have had a higher impact due to the feelings already exiting in their mind and thoughts. *''It was amazing. I have been in the in Africa a couple of times and it felt as if I was there again''* (Participant 3). Contrary, the results reflect a higher immersion in participants 1, 2 and 7. Their strong wish to travel to an exotic and further country could be the correlation of such results. The quotes reflect the implication of participants inside of the experience allowing themselves to feel and perceive another place. The greater feeling of immersions leads to a greater feelings of presence (Steuer, 1992). Their senses were engaged with the action happening due to the combination of visual attractiveness in the environment and their interest in the exotic nature and distant place observed (Sadowski & Stanney, 2002; Slater & Sanchez-Vives, 2016). However, the system did not appeal to all senses which brought the participant into a level 3 of immersion (Sherman & Craig, 2002). Despite of not having a full level of immersion, the chart above reflects their engagement (Sherman & Craig, 2002). All in all, immersion had an average score of 1.82.

The sentence *''It felt as if I was there again''* points that this specific informant experienced the notion of presence saying that his mind was somewhere else than his body. The experience applies to visual and hearing senses however, participant 14 mentions touching as an additional sensorial item.

Participant 4 went a step further. He easily saw the benefits of Virtual Reality but at the same time he mentioned possible inconvenience which could be solve in a simple way to make the experience even better. *''It takes our minds. However, my restricting position does not allow a lot of movement in concordance with what I have seen. Another thing is that for my eyes the focus is a bit difficult. But I think the idea is great.''* It seems to be a component which immerse their mind establishing the sensation of being in a new environment.

One of the conditions that make this content appropriate to be used in the process was the interactive elements displayed during the storytelling (Sherman & Craig, 2002). Objects and characters accurately allocated to stimulated the senses (Hultén, 2011; Lisewski, 2006) the engagement of the user and therefore, the feeling of being there (Mantovani & Castelnuovo, 2003). This suggestion was confirmed when participants expressed their surprise about these specific characteristics.

- *''That man is looking right in my eyes… wow, it's right in front of me''* (Participant 8).
- *''The lion and all the other animals were next to me''* (Participant 9).
- *''Felt like you can reach and touch them''* (Participant 14).

Interaction, as it is illustrated in the figure 6 (p. 35) is the bridge between technology and the person using the technology. It ensures the virtual power of decision-making process during the Virtual Reality experience. During the research process, it has not been stimulated the sense of touch. Yet, as the quotes reflects, the design of the content had several elements such as eye-contact or aerial vision to compensate the lack of touch but appealing deeper to the other senses. Therefore, 1.59 was the average of this variable with a standard deviation of 1.33. The power of the brain allows the construction of a sustainable reality according to what participants are used to see (Sanchez-Vives & Slater, 2005). Thus, when participant 14 mentioned that he could even touch the elephants, this can be characterized as one of the inputs which demonstrated the high level of engagement because he associates *''touch''* inside the experience.

Virtual Reality is a novel type of channel to experience content (Guttentag, 2010). The added value is the way that it appeals to more than one sense involving the participants into the environment. Even when the technology appeals to two senses, the brain can reconstruct the reality bringing elements in the environment to adopt meaningful context (Slater & Sanchez-Vives, 2016). An average of 1.82 scored the environment as *''natural''*.

Eleven of the twelve participants did not ever try before this technology. Participant 2 made a meaningful association which needs to by emphasises: *''It's the whole experience. It's like a movie but then it feels as if you are really there.''* Considering these perspectives together, Virtual Reality empowers participants 'minds to stimulate sensations and attitudes based on the construction of a new reality, in this case virtual. People need to make association to understand innovation. Radio applies to hearing sense. TV appeals to vision and hear senses as well as internet. Augmented reality also applies to these senses. However, the main difference which separates Virtual Reality from the other types of technology is the isolation of the participant from the reality. That is why *''It's like a movie but then it feels as if you are really there''* became an important statement to highlight. Even having similarities with other distribution channels of information, feels like the participant is part of the content, of the ''movie'', of the new reality.

Focusing on the sense of presence, the average is 1.15 with a standard deviation of 1.40. Despite being a positive result, 25% scored negatively meaning that they were still aware of their own reality. This can be highly related to several factors such as immersion stimulation still in the 3rd level or the emotional state of mind. Virtual Reality technology delivers experiences that give rise to illusory sense of place and an illusory sense of reality (Slater & Sanchez-Vives, 2016). Besides the technical system, the degree of presence depends on the subjectivity and predisposition of each person (Slater & Wilbur, 1997; Steuer, 1992). Therefore, it is important to keep in mind the reflection about their emotional state.

Their past experiences, the current situation and their future preference constructs their psychological aspects. Emotions, had the lowers rate compering all the variables. This is highly significant and it has a concordance with the results of the interviews. The average was 0.27 with a standard deviation of 1.54. This indicates that 60% of the people answered positively to degree of emotional engagement. Hence, this question requires special attention to recognise the elements that could influence their way of feeling. During the interview process, it was identified that their emotional level was negatively affected due to their treatment routine. Their day to day life has been affected by dialysis changing their working, traveling and generally, their social life. Nevertheless, they desire of travelling allows the participants to engage the Virtual Reality tourist system. The immersion of people with strong wishes (P. 1, 2 or 7) reflected even higher score.

Virtual Reality reconfigures time-space notion (Slater & Sanchez-Vives, 2016) and originates a sensorial and physiological experience co-creating a human experience (Cohen, 1979). This experience is composed by sensations and perceptions influencing the perception and memory of each individual (Campos et al., 2015). In synergy with the predisposition of each person, the more senses are involved,

the more emotional attachment is obtained. The feelings and relationship with the environment determine how engaged the person is within the Virtual Reality environment.

Following these last statements, the aim of the research was to analyse the possibility of achieving a tourist experience by enabling the sense of presence through Virtual Reality. Through the process, it has been identified engagement and interaction through the VR experience. This achievement is connected to their own perception. Focusing on the perception of tourist identity, the experience induces to take away their thoughts (average of 1.18) feeling more like a tourist instead of being a patient (average of 1.45). When using this measurement, it does not mean that everyone is mentally moved to Africa without any notion of their reality. It is evident that more informants are needed to follow this line of research. However, the Virtual Reality experience represents a new insight which can be consider as "leading patients feel tourists visiting places" instead of "patients watching images passively."

Sense of presence play a key role to facilitate the enjoyment of a tourist experience though Virtual Reality. The impact of the 360VR experience stimulated the creation of environmental and personal presence (Heeter, 1992) due to the interaction of sensory stimulations, environmental stimulations and internal predispositions of the participants.

Table 4: Results of Sense of Presence

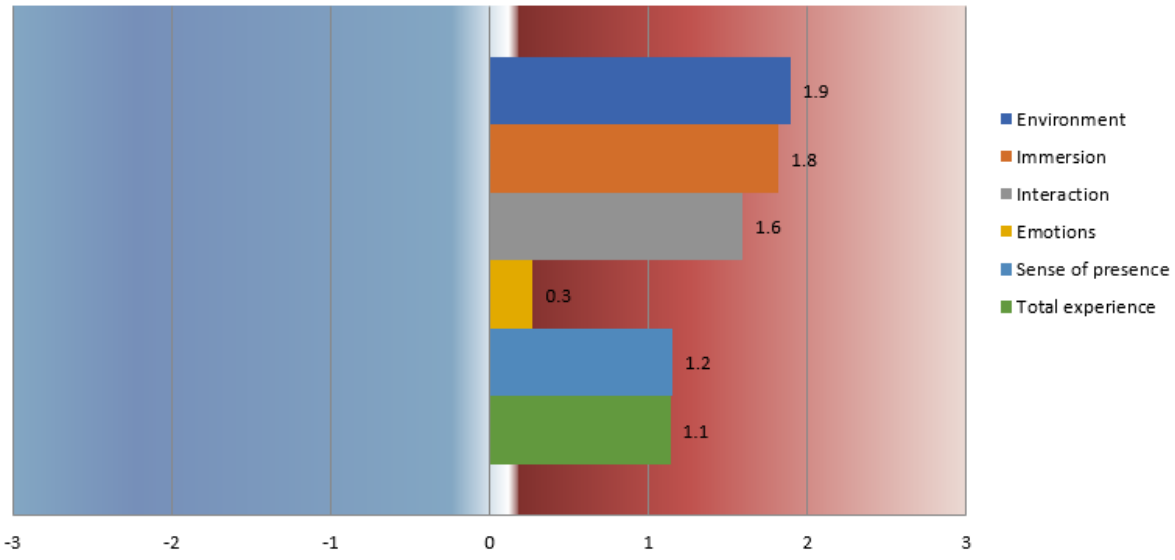
Sense of Presence	P1	P2	P3	P4	P5	P7	P8	P9	P10	P12	P14	Average	
sense of a presence in place	3	2	2	1	3	-3	-	3	-1	-3	2	**0.90**	
experience seems realistic	3	2	2	2	2	-	-	2	-1	-3	3	**1.33**	
aware of the experience	3	2	2	2	2	3	0	2	0	-2	1	**1.36**	lost in the story
aware of time	2	2	2	1	3	3	0	2	1	-2	0	**1.27**	lost the sense of time
images perceived	3	2	3	0	2	-3	0	-1	0	0	3	**0.82**	somewhere visiting
patient	3	2	2	1	3	-3	3	2	1	0	2	**1.45**	tourist
Average	**2.83**	**2.00**	**2.17**	**1.17**	**2.50**	**-0.60**	**0.75**	**1.67**	**0.00**	**-1.67**	**1.83**	**1.15**	

Participants get immersed in this virtual environment. They are surrounded by elements perceived through their senses (visual and hearing) which are in constant interaction with the participant. This fact allows them to accept the new reality and engage the new experience enabling sense of presence. More specifically, the composition of technological and physiological aspects reinforces sense of presence. Participant 1 explains his experience as follows:

"It is a very difficult process before I can go on vacation but with your divisor I can go wherever I want. If I want to go to scuba diving, or with the plane, with the balloon I can go where I want. For me it felt like I was there. Like I said it is my first time doing this but it looks like wherever I look I see people, I see the animals…I think everyone should have one. You are away but not away. You can take your mind off."

Overall, the total experience was positive. Participants suggested the desire of experiencing other landscape and activities such as walking tours in the Chinese wall or playing soccer with Barcelona soccer-players. Virtual environment can evoke the same reactions and emotions as the experience of a similar real-world situation (Hodges et al., 1994, p. 11). Based on Guttentag's (2010) statements participants used the network environment to roam in the hypothesized traveling scene, carry on with the system real-time alternately, and according to their own wish, the participant chose the viewpoint of the route while interacting with objects and other elements (grass, people), achieving the feeling they experience personally.

Figure 10: Overall values of the Virtual Reality Tourist Experience (VRTE)



Source: Own elaboration

Considering the model proposed (Fig. 6), it was stimulated the interaction of the technological with the individual side based on the dimensions composing tourist and virtual experience. This interaction had an effect on the degree of sense of presence allowing participants the identification of mind transportation into a tourist scenario. This dimension of tourist experience allocates the space of tourism in a less physical substance while enabling sensorial and physiological stimulation. Participants expressed their forgettable notion of their current space, the elements surrounding them such as the

sound of the dialysis machine and their belief of making eye contact with the African person or feeling the elephants next to their body.

The following chart sums up the values of each category obtained from the questionnaires.

Table 5: Sum up - Results

Data	Environment	Immersion	Interaction	Emotions	Sense of presence	Total experience
Average (N=11)	1.89	1.82	1.59	0.27	1.15	1.14
Standard deviation	1.16	1.31	1.33	1.54	1.40	1.56

Hence, it can be observe the main results of the each category regarding the average and standard deviation.

5. CONCLUSIONS

The inclusion of new technological advances has had a straight impact on the management and evolution of tourism sector. As it was revealed in the theoretical framework of the thesis, the development of tourism is strictly linked with technological progress. This research has focused its efforts on investigating the possible role of Virtual Reality (VR) in the co-creation process of a tourist experience. We saw that people travel to achieve a tourist experience and escape from their centre and their daily routine. However, for tourists with disabilities, the enjoyment of a tourist experience comprehends different dimensions and meanings. This research presented a case study aiming to evaluate how enabling the sense of presence through Virtual Reality technology may provide a key to achieving a tourist experience. The aim of this study was to determine perception of dialysis patients regarding their interaction with a virtual environment through providing an immersive touristic experience without leaving their room. There are a lot of Virtual Reality applications which can be considered in tourism. Virtual Reality can educate tourist to adopt a more sustainable behaviour or to solve accessibility problems such the service Shakespeare's house offers.

The relevance of this project relies on the fact that contemplates and considers the limitations of dialysis patients in a tourist experience context and seeks to investigate a combination of technology and human predisposition to transport them into a tourist space.

The theoretical framework provides a wide understanding about the linkage between tourism and Virtual Reality dimensions. Following the model proposed (Fig. 6), if individual characteristics are taken into account, while providing the 360VR content, more emotional attachment can be generated and consequently, the degree of the sense of presence becomes higher allowing the transportation of the minds of participants into another reality. During the investigation, the notion of presence was associated with emotional experiencing. Those who revelled a higher interest in the experience provided had a major degree of immersion and allowed their consciousness travel somewhere else.

The purpose of utilizing a Virtual Reality application for tourism development was not to substitute a real experience but to provide a chance to feel as a tourist for those people with disabilities who experience difficulties to carry out this activity. Consequently, the research firstly investigated their needs and desires to contribute to their well-being. Work and travelling were the two main issues that participants contrary faced and wished at the same time. Focusing on tourism context, participants had difficulties to talk about desires and wishes which had a lack of reality. However, findings revel that there is an intense desire to travel. Specially, participants imagined exotic destinations such as South Africa or China. They wanted to be active tourist carrying outdoor activities and being testimony of the natural environments. Similarly, the importance of social interaction has been one of the mail

elements recognized in their “previous” or “wished” tourist experience. They wished to exchange experiences with other people from different countries and share their knowledge about cultures.

However, the holidays management of dialysis require a complex organisational plan between parties such as general practitioner, insurances or dialysis centre of the hosted country. The findings from the case study design revels that the meaning of a tourist experience for these participants is being related to terminologies such as “complexity”, “long process” or “anxiety” instead of “spontaneous” or “excitement”. It has been identified that time and proximity are the main constrains of these participants. Their treatment routine embodies an impotence perception about their freedom of choice regarding their day to day life. Also, the lack of spontaneity due the constant treatment routine affects their emotional state of mind. These facts have straight impact on the meaning of their tourist experience as well as their state of mind. Thus, engaging them in a positive experience following their desires might generate more positive emotions towards their life experience and compelling a more desirable tourist experience.

Undergoing the virtual dimension of a tourist experience, time and space notions were encapsulated in a 360VR African experience making the consciousness of participants travelling to an alternative environment. Participants reveal their shock feelings while putting on the Samsung Gear VR Glasses. The findings of this research show that participants seem to engage the virtual environment. Therefore, the data on perceptual travelling dimensions and overall experience suggested that involvement represented a way of removing their negative thoughts while transporting participant’s consciousness through a less physical dimension reaching escapism. This engagement allowed participants to feel their mind travelling to another place and having the impression of being involved in the activity perceived. The research intended to unify two phenomenon’s, tourism and Virtual Reality, in one whole human experience. The results suggest that sense of presence could be the phenomenon which can facilitate the notion of a tourist experience allocated in travelling system space though Virtual Reality.

As most of the participants have encountered complex situations while pursuing a tourist experience, the study distinguishes a possibility to make use of Virtual Reality technology to stimulate the perception of disable people through sensorial and psychological dimensions. Moreover, the sense of presence within a tourist context leads patients feel tourists visiting places instead of patients. These new insights related to their desires and transmitted through their senses contributes positively to their emotional state of mind. The fact that the whole experience has an improvement in both patient and tourist perception could straight lead to influence their emotional recovery and therefore their quality of life.

Hence, the investigation contributes to academic literature in several ways. First, it introduces the notion of tourist and virtual experience which are sharing similar conceptual dimensions. Second, sense of presence phenomenon was conceptualised as a key characteristic of Virtual Reality tourism experience. Thirdly, it was developed a model to match tourist and Virtual Reality dimensions into a single experience. As suggested in the framework, besides the technical system, individual predisposition of the people presents the key to enable sense of presence and therefore, achieve escapism in a tourist experience. On one side, this escapism contributes positively to their needs and desires stimulating a gateway to tourism experience. On the other side, it could be perceived a positive effect on their emotional state of mind during their treatment routine enhancing their emotional recovery.

However, research in this field is limited due to time and financial constraints. Consequently, further research should be done to continue and explore how implementing this experience for longer period of time would contribute to the emotional attachment of tourism experiences. This is the first time someone studies the possibility of immersing dialysis participants into a virtual tourist space stimulating a possible sensorial and psychological tourist experience through Virtual Reality. Therefore, limited information could be gathered. The combination of both tourism and Virtual Reality within the healthcare context is still on an early stage. It could perhaps contribute to stimulate their travelling desires and reduce their fear of travelling. Due to the innovative profile of the study there is limited research done to compere the results of the investigation. Consequently, the study does not provide a comparative analysis between the reactions of the participants using Virtual Reality or without using Virtual Reality. Based on the findings of the case study, further research should be done in the field to gather more information and to be able to establish a control group in order to measure the answers. Also, further research could investigate the characteristics of the Virtual Reality content desired by disable people compering several productions. This could be relevant to stimulate a higher degree of sense of presence and to get a more immersive experience. Beyond this, research on possible influence on patients' emotional recovery can be considered.

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7. APPENDIX

PARTICIPANTS

Appendix 1: Main characteristics of the participants interviewed

Subject code	Age	Sex	VR interest
Stage 1			
P. A	65-74	M	Yes
P. B	44-54	M	Yes
Stage 2			
P1	45-54	M	Yes
P2	75+	M	Yes
P3	65-75	M	Yes
P4	35-44	M	Yes
P5	44-54	F	Yes
P6	55-64	F	NO
P7	65-74	F	Yes
P8	65-74	F	Yes
P9	22-34	M	Yes
P10	45-54	M	Yes
P11	64-74	F	NO
P12	64-74	F	Yes
P13	64-74	F	Yes
P14	35-44	M	Yes
P15	45-55	M	NO

It was also interviewed Ans van Selst, Holidays Co-Coordinator. Dialysis department at Máxima Medisch Centrum.

Appendix 2: Sum up notes

Environment	➢ Patients are allocated in two rooms, one big and another one smaller. ➢ Depending on the area that they are being assisted, the patients can look at the windows. ➢ Each bed has its own TV. ➢ Next to the patients there is a monitor where says all the information relevant to the treatment such as time, pression ets. ➢ White wholes, simple room design. Serious atmosphere. There is always a sound from the dialysis machine.
Interaction	➢ They try to make jokes with the nurses. ➢ They get lunch from the nurses. ➢ Some patients make more noise than others. Some patients have visits during their treatment. ➢ Some patients are more willing to talk than others.

Others	➢ They are there three times per week around four hours per day. Some patients come also on Saturdays. There are two turns: 9-12 and 13:00 to 16:00 (never exactly the same). ➢ They are standing in the same position. They cannot move. They can bring books, magazines etc (for entertainment). ➢ They would need someone to put the VR glasses on because of their dialysis.
Trip management	➢ Trip to Ibiza. Experiencing language barrier between centres. ➢ Difficulties to reach the dates wished by the future dialysis tourist ➢ Long process to get answers ➢ Patient cannot book the trip before everything is confirmed. ➢ Document received from the guest centre in Spanish.

SEMI-STRUCTURED INTERVIEWS

Appendix 3: Questions semi-structured interviews

Date: 06/03/2017

Location: Máxima Medisch Centrum, Veldhoven, The Netherlands

Attendees: Ans van Selst - Holiday Co-ordinator Dialysis Department

Ioana A. Mereuta- Thesis Author

The purpose was to gain a better understanding of the holidays organisation process for dialysis patients and the options that they are exposed.

- How many dialysis patients do you have in the dialysis department at MMC?
- Are dialysis patients interested in travelling?
- How many patients have travelled per year to another place?
- What options do they have regarding the organisation of the trip?
- Do they face any type of in case they want to travel?
- What is the process that they need to follow to plan their trip?
- How long usually they stay aboard?
- Who is covering the costs of the process?

Date: 07/03/2017

Location: Máxima Medisch Centrum, Veldhoven

Attendees: Patient A & B - Dialysis Department

Ioana A. Mereuta- Thesis Author

The purpose was to gain a better understanding of the tourist experience of dialysis patients.

- Tell me about your travelling experiences? When and where have you been travelling?
- What was your motivation to travel there?
- What type of activities did you do?
- When was your last trip?
- What was the process you had to follow to organize your trip? Before and after dialysis.
- How long was your last trip? How long would like it to be?
- What feelings have you experienced before, during and after the trip?
- Did you use to travel by yourself or with someone else?
- Where would you like to go? What is your dream trip?

Appendix 4: Questions addressed to 15 participants

Individual characteristics & tourist experience of the participants

The purpose was to gain a better understanding of the needs and desires of the participants regarding their persona and the disease. Also, comprehending their tourist experience.

- Could you tell us about your daily routine…?
- How does your routine change the days you might come here?
- Explain to us your interest and how would you define yourself…
- Do you have any hobbies or activities you like to practice?
- What would you do today if you would not need to be here?
- How would you define your stay in the hospital?
- What type of circumstances influence positively and/or negatively your dialysis treatment?
- What's the most uncomfortable thing during your treatment?
- During the session, what feelings are you experimenting?
- If we could offer a way to enhance your stay in the hospital, what would you like us to provide you?

- What was the last trip you have done?
- What reason brings you to go travelling?
- What would be your dream trip?
- If we could provide the opportunity to escape from the hospital where would you like to go?
- What type of activity would you like to practice?

Appendix 5: Questionnaire

Questionnaire

This questionnaire is designed to gather information about your experience with Virtual Reality. The information provided will be stored separately from your personal file and will not be referred to in any personal way.

1. Please, evaluate the **Environment Experience** according to the next parameters. To what extent is it rather A than B? Indicate your answer with X in each line.

A	1	2	3	4 (neutral)	5	6	7	B	I don't know
Not visually attractive								Visually attractive	
Boring								Interesting	
Bad quality resolution								Good quality resolution	
Seemed not natural environment								Seemed natural environment	
I couldn't hear the sound properly								I could hear the sound properly	

2. Please, evaluate the **Immersion** (perceived physical experience) according to the next parameters. To what extent is it rather A than B? Indicate your answer with X in each line.

A	1	2	3	4 (neutral)	5	6	7	B	I don't know
I thought my body was inside of the hospital								I felt physically moved in another place	
I felt I had no control of my body								I felt I had control of my body	

3. Please, evaluate the **Interaction** (perceived human interaction experience) according to the next parameters. To what extent is it rather A than B? Indicate your answer with X in each line.

A	1	2	3	4 (neutral)	5	6	7	B	I don't know
I did not move around								I moved around	

I did not reach the feeling of interaction								I reached the feeling on interaction	
I felt I had no control over the decision-making process								I felt I had the control over the decision-making process	
I had no chance of choice								I had chance of choice	

4. How did you feel about the **Experience?** Please, indicate your answer with X in each line. How much do you agree with the followings? (1=not at all; 2=quite not; 3=slightly not; 4=decidedly neutral; 5=slightly yes; 6=quite yes; 7=completely).

	1	2	3	4 (neutral)	5	6	7	I don't know
I felt emotionally engaged								
I felt excited								
I felt surprised								
I felt nostalgic								
I felt active								
I felt tourist instead of patient								

5. Please, evaluate the **Sense of the Presence** experienced (belief that the experience was real) Please, indicate your answer with X in each line.

- To what extent did you have a sense of being in place?

Not at all	1	2	3	4 (neutral)	5	6	7	Very much so	I don't know

- To what extent did the experience seem to be realistic?

Not at all	1	2	3	4 (neutral)	5	6	7	Completely	I don't know

- To what extent do you agree with the following statements? (*1=disagree; 2=quite disagree; 3=slightly disagree; 4=decidedly neutral; 5=slightly agree; 6=quite agree; 7=completely agree).*

I was aware of the experience	1	2	3	4 (neutral)	5	6	7	I lost myself in the story	I don't know
I was aware of the time								I lost the sense of time	

- When you think about your experience, do you think about the VRTE as images that you saw or somewhere that you visited?

Only images that I saw	1	2	3	4 (neutral)	5	6	7	Somewhere that I visited	I don't know

- During your experience, did you feel more tourists rather than a patient?

Patient	1	2	3	4 (neutral)	5	6	7	Tourists	I don't know

6. Please evaluate your completely experience from the VRTE according to the next parameters. To what extent is it rather A or B? Please, indicate your answer with X in each line.

	A	1	2	3	4 (neutral)	5	6	7	B	I don't know
The VRTE meant a lot to me	Disagree								Completely agree	
VRTE is a unique experience	Disagree								Completely agree	
The VRTE helped me to get rid of my thoughts regarding dialysis treatment	Disagree								Completely agree	
The VRTE would contribute positively to my state of mind during the treatment routine	Disagree								Completely agree	

7. Thinking about your trip to overall, what did you enjoy the most? What would you enhance?

   ……

   ……

8. Which other experience would you like to consider?

   ……

9. What is your gender?

   a) Male b) Female

10. What is your age?

a) 18-25 b) 26-35 c) 36-45 d) 46-55 e) 56-65 f) 66 and more

THANK YOU! :)

TABLES RESULTS

Appendix 6: virtual environment

Environment	P1	P2	P3	P4	P5	P7	P8	P9	P10	P12	P14	Average	
Not visual attractive	3	3	0	2	2	3	3	3	2	0	2	**2.09**	Visually attractive
Boring	3	3	-2	-2	1	3	3	3	1	-1	3	**1.36**	Interesting
Bad quality resolution	3	2	1	0	2	3	3	1	1	-1	2	**1.55**	Good quality resolution
Seemed not natural	3	3	-2	2	2	3	3	2	2	0	2	**1.82**	Seemed natural
Couldn't hear properly	3	3	3	3	3	3	3	2	3	1	2	**2.64**	I could hear properly
Average	**3.00**	**2.80**	**0.00**	**1.00**	**2.00**	**3.00**	**3.00**	**2.20**	**1.80**	**-0.20**	**2.20**	**1.89**	

Appendix 7: Immersion

Immersion	P1	P2	P3	P4	P5	P7	P8	P9	P10	P12	P14	Average	
Body inside hospital	3	3	0	1	2	3	3	3	2	0	3	**2.09**	Physically moved
Had no control of body	3	3	-2	2	2	3	3	1	1	0	1	**1.55**	Had control of body
Average	**3.00**	**3.00**	**-1.00**	**1.50**	**2.00**	**3.00**	**3.00**	**2.00**	**1.50**	**0.00**	**2.00**	**1.82**	

Appendix 8:Interaction

Interaction	P1	P2	P3	P4	P5	P7	P8	P9	P10	P12	P14	Average	
I did not move around	3	2	0	1	1	3	3	3	1	-1	3	1.73	I moved around
I did not reach the feeling of interaction	3	2	-	1	2	3	3	3	0	-2	2	1.70	I reached the feeling of interaction
No control over decisión-making process	2	2	0	2	3	3	3	3	1	0	1	1.82	I felt I had control over the decision-making process
No chance of choice	2	2	0	1	1	3	3	3	-2	0	1	1.27	I had chance of choice
Average	**2.50**	**2.00**	**0.00**	**1.25**	**1.75**	**3.00**	**3.00**	**3.00**	**0.00**	**-0.75**	**1.75**	1.59	I moved around

Appendix 9: Emotions

Emotions	P1	P2	P3	P4	P5	P7	P8	P9	P10	P12	P14	Average
I felt emotionally engaged	2	1	-3	1	2	0	0	2	0	-3	0	0.18
I felt excited	2	1	-3	0	2	-1	-	2	-1	-3	0	-0.10
I felt surprised	2	2	-1	0	1	-1	0	2	-1	-3	1	0.18
I felt nostalgic	2	0	1	0	-1	-1	-	1	-1	-3	0	-0.20
I felt active	2	2	0	1	1	0	-	2	-1	-3	0	0.40
I felt tourist instead of patient	2	2	-3	1	2	0	3	3	1	-3	2	0.91
Average	**2**	**1.33**	**-1.5**	**0.5**	**1.17**	**-0.5**	**1**	**2**	**-0.5**	**-3**	**0.5**	**0.27**

Appendix 10: Sense of Presence

Sense of Presence	P1	P2	P3	P4	P5	P7	P8	P9	P10	P12	P14	Average	
sense of a presence in place	3	2	2	1	3	-3	-	3	-1	-3	2	**0.90**	
experience seems realistic	3	2	2	2	2	-	-	2	-1	-3	3	**1.33**	
aware of the experience	3	2	2	2	2	3	0	2	0	-2	1	**1.36**	lost in the story
aware of time	2	2	2	1	3	3	0	2	1	-2	0	**1.27**	lost the sense of time
images perceived	3	2	3	0	2	-3	0	-1	0	0	3	**0.82**	somewhere visiting
patient	3	2	2	1	3	-3	3	2	1	0	2	**1.45**	tourist
Average	**2.83**	**2.00**	**2.17**	**1.17**	**2.50**	**-0.60**	**0.75**	**1.67**	**0.00**	**-1.67**	**1.83**	**1.15**	

Appendix 11: Total Experience

Total Experience	P1	P2	P3	P4	P5	P7	P8	P9	P10	P12	P14	Average
meant a lot	3	1	0	1	2	3	0	0	1	-3	2	0.91
unique experience	3	1	0	2	2	3	0	1	0	-2	3	1.18
get rid of my thoughts	3	2	-2	3	3	3	0	2	1	-2	0	1.18
contribute + to my state of mind	3	2	-2	3	2	3	0	2	0	0	1	1.27
Average	**3.00**	**1.50**	**-1.00**	**2.25**	**2.25**	**3.00**	**0.00**	**1.25**	**0.50**	**-1.75**	**1.50**	1.14

Appendix 12: Overall categories

Data	Environment	Immersion	Interaction	Emotions	Sense of presence	Total experience
Average (N=11)	1.89	1.82	1.59	0.27	1.15	1.14
Standard deviation	1.16	1.31	1.33	1.54	1.40	1.56

Appendix 13: Example of Transcription

Date: 03/04/2017

Location: Máxima Medisch Centrum, Veldhoven, The Netherlands

Attendees: Participant 4

SECTION I

1. **Tell us about your daily routine…**

There is not routine for me yet. On the 17th of February, I went to the hospital and I think on 7th of March I got out. Then I started the dialysis and I have not been able to go back to work yet because I am bleeding. I do not really have a routine at this point. Hopefully next week I can go back to work. So I will start to work a couple of days per week. There is not routine yet. I do not know what that plays in. Before that I went to work every day. Dialysis has been gone for 3 weeks. The first 10 days I did not come here but afterwards I started to come here.

2. **Does it take for you a lot of effort to come here? Do you live in Eindhoven?**

I live in Veldhoven. I am very unique because I do not have Dutch health-insurance. It is from EEUU which makes it really complicate (maybe too confidential). I have to pay first the bills and then I will get it reimbursed. So, I assume will be many tens of thousands of euros. I am 21 days in the hospital and one day is 500€. So.. yeah.. that would be interesting to see what happens. But also, my insurance does not pay for a taxi which also is requires by the Dutch law. But my wife drives me here and then she will pick me up. We have been in the Netherlands for almost 5 years and we will leave the Netherlands in July. Partially we already planned this but because of this situation it is better to go back to America and get a transplant.

3. **How does your routine change the days you might come here?**

I don't have a routine yet. What changed is that I do not go working right now.

4. **Explain to us your interest and how would you define yourself…**

My kids mostly. Things have changed a lot. We used to do a lot of travelling. A lot of climbing. We went rock-climbing in Sicily and staff like that. But know that is not possible because I am here 3 days per week. But mostly the kids and football, cycling... but this is very new we do not really have a routine yet. As a profession, I work on Electron Microscopes.

5. **Is that why you moved here?**

Yes. The company was both for another company and it is a really large company. A lot of my time I am spending on that. Parts that I need to do for work and parts that I just enjoy. Sometimes I need t find my own time to do the things I want to do.

6. **Do you have any hobbies or activities you like to practice?**

Before dialysis was primary cycling and doing the stuff that the kids do. The kids have got in the rock climbing for many years. They are not old enough to put rips up and stuff yet so I do that for them. But even before this I am getting to old. They are learning. They have a lot of learning to do yet. Beyond that just work and the kids. Football and climbing and Irish dance and the week nights are Irish dance and football.

7. **What would you do today if you would not need to be here?**

If I wouldn't be here I would be at work. I do not know yet how this will affect me… I think the biggest thing would be travel. So… last year I travelled one hundred and 30 thousand miles, the year before also… I go and see customers in Asia or North America… so would be so interesting to see what happens next. I think that is the biggest one. Coming here doesn't matter. Tuesday, Thursday and Friday I have to come to dialysis so I bring my computer and I work. Saturday is bad because is family day. The other time doesn't care. Everybody is very supportive so, I do not expect to be a problem. I would like to change the type of dialysis to the one you can do home. I would prefer to do that. But right now, it is not possible. However, if it was not for dialysis the biggest thing would be travel. So I suspect I can travel in North America.

8. **How would you define your stay in the hospital?**

The nurses are very good. I did not want to be here. They do what is the best for the patients but for me is still waiting to see what happens. Other than they are very helpful. The surgent was very good at communicating because putting this was not really nice.

9. **What type of circumstances influence positively and/or negatively your dialysis treatment?**

Positive, the fact that it matters. We would not be here if we could not be alive. That is the automatic positive thig, that it sustains live. People are very nice and very helpful and efficient on what they do. Nurses are really sociable.

10. **What's the most uncomfortable thing during your treatment?**

[some people are better doing things than others] Rather than that nothing special. Coming here three times I guess…

11. **During the session, what feelings are you experimenting?**

For me it really depends. It is so new. In general, I am just with my phone playing games or work. For me I am not back to work yet and I do not have a routine so, I am just a bit anxious because they measure my immunity global while I am here. So then I wait for the answer if I can walk form here if I can go back to work… It is a bit of anxious time because I am waiting for the numbers. Today was the best that could have been so I hope that goes up.

12. **If we could offer a way to enhance your stay in the hospital, what would you like us to provide you?**

At the end of the day for me I just want to go back working. But I do not know something that would enhance. Maybe if I can pick my nurse… the confidence in the nurse is the most important thing. Building a relationship with the professional is important.

SECTION II: TRAVELLING EXPERIENCE

1. **What was the last trip you have done?**

Oregon in February, Taiwan in January. I have to look at my calendar. Most of the travels is for work. I have been to Corea for more than twenty times and I never thought to stay over. A trip with my family… Christmas we went to see friend in Spain… before that.. I do not remember .. We have been here for a while. My family went to Hawaii.. We are kind of done travelling here anyways. I think other than Sweden and Portugal we have been basically everywhere wester and eastern part of Europe in the last couple of years. Three times in Turkey, Switzerland three times, France lots of times and Spain twice, Denmark, Norway ... I meant we took advantage of being here. We went to Mallorca once,

2. **What reason brings you to go travelling?**

My wife. She wants to check off countries. Last year we knew this was happening so we asked kids, where do you want to go so we went to rock-climbing. We also did a cruise with my parents so literally through Turkey to Greece which was just spending time with the family. We went sailing in Switzerland. That is one of the greatest things. Usually we just go to do something. GO to climb go swimming, go to do something. A couple of times I had to go to Grenoble to see customers and then I say well.. I will go this week because then the kids can come along and they can join as well. Usually try to avoid cities and go to do something.

3. **What would be your dream trip?/ Tell us about your dream trip**

I do not have one right now. I have to be careful with the kidney that I have. I would probably go back to Switzerland and go sailing.

4. **If we could provide the opportunity to escape from the hospital where would you like to go?**

Right now, I would go to the beach. The blood is very low so I need vitamin D but also, I am cold all the time so beach would be the best

5. **What type of activity would you like to practice?**

I would probably just hang out. Watch the kids, go swimming, and hand out.

AFTER TRYING THE GLASSES - VRTE

1. **Could you tell us what you have been experiencing during the trial VRTE?**

   Sure.

You need to start from my perspective. I am laying here now so if the helicopter is flying for me it's difficult to look at the ground. So, If I was sitting here and I wanted to look down… My resting position needs to be here. So, if I want to look at the ground I can look at me toes. I think that is the most important. At the beginning, I did not realise that there were things underground because was too far over. But on the other hand, it is nice to have something to SEE and I guess you can bring new experiences to people and that kind of thing, right? It takes our minds and also maybe I do not think that this one is relaxing but maybe you can also bring something more relaxed.

For me it is a bit different because I have an agreement with my boss so I have to miss work because I am here. I got an agreement with him that if I work here its fine. So, I should work but maybe on Saturdays would be nice. Another thing is that for my eyes the focus is a bit difficult. But I think the idea is great.