

April 2023

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Amir Haj-Bolouri

School of Business, Economics, and IT Department of Informatics University West, amir.haj-bolouri@hv.se

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Recommended Citation

Haj-Bolouri, A. (in press). The Experience of Immersive Virtual Reality: A Phenomenology Inspired Inquiry. *Communications of the Association for Information Systems*, 52, pp-pp. Retrieved from <https://aisel.aisnet.org/cais/vol52/iss1/32>

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Communications of the
Association for **I**nformation **S**ystems

Accepted Manuscript

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Amir Haj-Bolouri

School of Business, Economics, and IT
Department of Informatics
University West
amir.haj-bolouri@hv.se

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The Experience of Immersive Virtual Reality: A Phenomenology Inspired Inquiry

Amir Haj-Bolouri

School of Business, Economics, and IT
Department of Informatics
University West
amir.haj-bolouri@hv.se

Abstract:

Immersive Virtual Reality (IVR) technology is becoming central for Information Systems (IS) research. However, existing studies in IS fall short in providing insights about how the IVR experience becomes meaningful for end-users. To increase granularity and specificity in this regard, researchers have suggested that the IVR experience can become meaningful due to its fleeting feeling of escapism. In this paper, I explore and characterize how individuals use the IVR experience to create meaning in the context of meaningful escapism, by undertaking a phenomenology inspired inquiry, based on Heideggerian views on meaning, meaningfulness, and world. Interviews and analysis were conducted within an empirical case of IVR fire safety training. As a result, four characteristics of the IVR experience as a meaningful form of escapism were unveiled: a sense of content, a sense of familiarity, a sense of mood, and a sense of care. Throughout this study, I offer a nuanced perspective on how the characteristics contribute to clarify the distinctions and relationship between meaning and meaningfulness, as well as how the IVR experience becomes a meaningful escapism that provides an alternative of individual's being-in-the-world, into a being-in-the-virtual-world, also known as Virtual Dasein. Further, this study contributes to the IS field by advancing the current discourse on IVR research and escapism, from a phenomenological perspective.

Keywords: Immersive Virtual Reality, Escapism, Phenomenology, Meaning, Meaningfulness, Information Systems.

1 Introduction

Some philosophers argue that technology is a sword that will put the 'real' to death. The Italian philosopher Gianni Vattimo, for instance, warned us about technology trying to impose its own version of reality as the sole possible reality (Blackburn, 2005). Technology certainly provides a way of rearranging the reality, so we do not have to experience it as real. Thanks to this, technology also has the capacity to produce layers of illusions that seem real. Ironically, the closer we come to creating accurate representations of the real, the further the real recedes (De Oliveira et al., 2016). The representations we create with increasing verisimilitude are thus becoming stand-ins for the 'real' (Burdea & Coiffet, 2003). The danger is that the representation of reality eventually replaces the real entirely, the realistic illusion alone remaining (Bailenson, 2018). However, there is nothing new about confronting the difficulty of distinguishing between the unreal and the real, between illusion and reality. Whether it comes from thinkers such as Plato and his thought experiment 'The Cave', Nick Bostrom's (2003) sceptic theory on simulation and reality, or endless examples of thought experiments that rehabilitate the variants of realism (e.g., naïve realism, critical realism, indirect realism) in a modern age. As such, philosophical excursions about 'the real' and illusions have become re-actualized over time as questions for both scientists and philosophers to indulge with. Nevertheless, with the re-emergence of immersive technologies, such as Immersive Virtual Reality (IVR), exploring what characterizes the 'immersive virtual reality' as something 'real', cultivates a need to extend prior thinking around the relationship between technology, 'the real', and the experiences that are on the surface considered to be illusory, yet felt as meaningful by people.

IVR is a peculiar form of technology that distinguishes itself from ordinary Information Technologies (ITs) due to the capability of simulating virtual worlds through head-mounted displays (HMDs) that mediate an immersive experience that feels real (Fromm et al., 2020). Although the concept of virtual reality has been well-known for decades, its popularity has since 2016 and onwards been increasing due to affordable and powerful consumer-grade HMDs that produce the immersive experience (McGill et al., 2016). In fact, the increased popularity of IVR technology led to 2.3-billion-dollar investments in IVR start-ups in 2016 (CAICT, 2017), creating a 6.1 billion market in 2020. And by the year 2025, the IVR market is expected to reach 20.9 billion dollars (Kugler, 2021) as Big Tech is re-emphasizing IVR for consumer and business applications (Huddleston, 2021), including Facebook's large initiative on 'Metaverse' (Zuckerberg, 2021). The new stream of IVR technology, along with interrelated emerging immersive technologies such as Augmented Reality (AR), are thus becoming an integral part of society's digital landscape, providing individuals, groups of individuals, and organizations, added possibilities for extending reality. Consequently, scholars from a variety of research disciplines (e.g., Human-Computer Interaction, Medicine, Computer Science, Education Science) have shown an interest for studying the nature of IVR technology (Wang et al., 2020).

In the discipline of Information Systems (IS), an interest for studying early virtual reality technology (e.g., desktop virtual reality) was expressed by Walsh & Pawlowski (2002, p. 297) as: "[...] a technology in need for IS research." Several attempts have been made in IS since the 2000s to encourage such advancement (e.g., Cavusoglu et al., 2019; Parvinen et al., 2018; Steffen et al., 2019; Wohlgenannt et al., 2020), with a particular interest for how to develop IVR technology that support work practices (Radhakrishnan et al., 2021) and education/learning (Hamilton et al., 2021; Radianti et al., 2020; Rojas-Sánchez et al., 2022). While such research initiatives have provided the IS discipline merits for understanding the socio-technical implications of IVR technologies for work and education (Bailenson, 2018), more knowledge about the nature of the IVR experience, and how it becomes meaningful for end-users of IVR-technology, is needed (Saker & Frith, 2019).

As a way of advancing IS research on the aspect of how the IVR experience becomes meaningful for end-users of IVR technology, this research argues that the IVR experience is a form of 'escapism' that urges people to escape the 'real world' in order to find a sense of meaningfulness in the virtual world. The escapism offers people a way to not only escape parts of the reality which they want to avoid, but also to extend their reality into a broader one, which allows their mind to travel to worlds where the body cannot go (Kim, 2015; Sirichaoren, 2019). These so called 'worlds', exist beyond the mere physical one (Saker & Frith, 2020), which allows us to fleet and explore reality through many worlds. Examples of such escapism include multiple connotations such as running away from danger, leaving reality (e.g., going for a short-term vacation), or just changing the positions of daily life. This is arguably an inborn human need (Hazzard, 2016), to escape a world in order to search for meaning, create meaning, or share meaning,

which then might find its place into our lifeworld and thus makes the experience feel meaningful. It is against this background that this paper asks the following research question:

RQ1: How do individuals use the IVR experience to create meaning in the context of meaningful escapism?

This study deliberately asks ‘how’ rather than ‘what’, because how the IVR individuals use the IVR experience to create meaning, is a subject matter for inquiring the lifeworld of an individual (Van Manen, 2017), which deals with the sensory perception (also known as ‘qualia’) of the feeling of meaningfulness. In other words, the emphasis is on the meaningful user activity in the context of meaningful escapism rather than on the category of a ‘meaningful way of escaping the world’. Meaningfulness is in such terms, as will be explicated in latter parts of this paper, felt through a mood of how the IVR experience matters to the end-user’s lifeworld (Elpidorou & Freeman, 2015), rather than being a fact that the experience is meaningful (Freeman & Elpidorou, 2015). Hence, the becoming part of the research question is central for exploring how the IVR experience can be perceived or felt as a meaningful escapism by end-users of IVR technology. As such, the research question motivates a phenomenological inquiry that helps this study to address the question, because phenomenology studies the lived experience of sensory perceptions and the phenomena that contributes with meaning and meaningfulness in our lifeworld (Van Manen, 2016, 2017).

More specifically, this study employed a phenomenological inquiry based on Martin Heidegger’s (1962) phenomenology with a particular focus on meaning, meaningfulness, and the notion of ‘world’. Moreover, this study applied a phenomenological approach for interviewing and data analysis (Bevan, 2014). The phenomenological interviews were conducted together with participants of IVR fire safety training, which on daily basis, work as train operators and train drivers for Sweden’s largest train operator company. In summary, the phenomenological inquiry helped this study to: (i) identify situations where the participants of the fire safety training feel that the IVR experience urges them to escape the world; (ii) unveil and characterize how the IVR experience becomes an escapism; and (iii) provide a discussion about the IVR experience in IS, which goes beyond the ontological assumptions of representationalism – being the ontological view that has dominated extant conceptualizations of the IVR experience in the fields of Computer Science and Human-Computer Interaction (e.g., Biocca, 2001; Durlach & Slater, 2000; Heeter, 1992; Held & Durlach, 1992; Lombard & Ditton, 1997; Loomis, 2016). Consequently, four characteristics were unveiled through the phenomenological inquiry to characterize how the IVR experience becomes a meaningful escapism: ‘Sense of Content’, ‘Sense of Familiarity’, ‘Sense of Mood’, and ‘Sense of Care’. As such, this study produces knowledge that is relevant to for the IS field due to the following reasons.

First, traditional virtual reality technology and the experiences it mediates are IS phenomena that IS scholars have shown interest for decades (Walsh & Pawlowski, 2002), whereas the new form of experiences that IVR technology mediate, call for IS studies to conceptualize and clarify the rich nuances of the IVR experience (Wohlegenannt et al., 2020). Second, there exists a need in IS to characterize a clear notion of what we mean by ‘meaningfulness’ in IS research. This argument derives from the current lack of conceptually clarifying ‘meaning’, ‘meaningfulness’, and their co-existence with IVR experiences that have been under prevalent scrutiny in recent IS studies (e.g., Dincelli & Yayla, 2022; Fromm et al., 2021; Radhakrishnan et al., 2021; Radianti et al., 2020). Third, providing a philosophical discussion around meaningfulness in IS, can shed light on how we as IS scholars can approach, and/or challenge, our ontological assumptions behind ‘real’, ‘reality’, ‘world’, ‘virtual’, and ‘virtual reality’. Fourth, the notion of ‘escapism’ is an emergent topic in IS, where scholars (e.g., Hartl & Berger, 2017; Sirichaoren, 2019) have called for IS studies to attention why end-users choose IVR technology as a medium for escapism. Finally, this study demonstrates the viability of phenomenology for IVR research in the field of IS and illustrates this by proposing ‘Virtual Dasein’ as a way of understanding meaningfulness in IVR as ‘being-in-the-virtual-world’.

The rest of the paper is organized as follows. First, a section about the IVR experience is presented, where constitutive notions of reality, immersive virtual reality, and escapism, are discussed. Second, the phenomenology inspired inquiry is outlined. Third, the unveiled characteristics of the IVR experience as a meaningful escapism, is presented. Fourth, a discussion section is provided to discuss the contributions and implications of this study. Finally, the conclusions of this study are presented.

2 The Immersive Virtual Reality Experience

This section focuses a discussion around the IVR experience by first clarifying different philosophical notions of the term 'reality', a phenomenon that is central for understanding the nature of IVR. I thus begin this section by discussing what reality is, then address the question of what the IVR is. After that, I discuss the IVR experience and how it is a form of escapism.

2.1 What is Reality?

Answering the question: what is reality? is a rather difficult task for an IS scholar to do because it is, in its essential meaning, mainly a philosophical question (Metzinger, 2018). We as IS scholars can, however, draw inspiration from synthesized body of philosophical knowledge, to inform our understanding of IS phenomena that are situated in reality (Hassan et al., 2018). For instance, if one follows the philosophical tradition of 'realism', one claims that only solipsists deny the existence of a reality beyond the experiencing subject. Through our senses, we encounter reality through the physical world that Immanuel Kant referred to as *Ding-an-sich*, or 'the-thing-in-itself' (Blackburn, 2005). The thing-in-itself is the world as it exists independent of our experience of it. This notion of reality is congruent with 'direct realism' (also known as 'common sense realism' or 'naïve realism'), which is the idea that our senses provide us with direct awareness of objects as they really are (Kaupinnen, 2012). As the term suggests, direct realism makes the 'realism' claim, which is that the existence of the world of objects is not dependent upon it being perceived. In other words, the realism claim says that the objects exist independently of us – objectively, as it were (Blackburn, 2005). In turn, the realism claim unites both direct and indirect realism against what is known as 'idealism'.

In contrast to realism, idealism conceives reality through the metaphysical realm of ideas in the mind rather than to material objects (Blackburn, 2005). Idealism lays emphasis on the mental components of experience, and thus, renounces the notion of reality as objectively independent of our minds (Johnson-Laird, 1983); e.g., we can experience physical objects only through our perception and there is no possibility of interacting with them directly. Moreover, the human mind is also the unit of which fictions and illusions are made, at least if one undertakes a view on reality according to 'phenomenalism', being a completely anti-realist metaphysic that conceptualizes existence and reality according to the quality of mental events or moments of fleeting experiences (Hovhannisyann et al., 2019). A dualist form of representationalism reinforces the cognitive scientific view of reality as being a representation of reality (Diemer et al., 2015). As such, the debate within cognitive science brings to the fore the tension between the two presented claims so far – the 'directness claim' of direct realism, and the realism claim to defend our intuitions of direct perceptual access to an independent world – which first emerged in the days of the British philosophers Berkley and Locke (Blackburn, 2005). In the terms of twenty-first century cognitive science, one can thus have the directness claim, or the realism claim, and sometimes a hybrid form, unless one undertakes a critical realist stance on what reality is (Mingers et al., 2013).

Critical realism conceptualizes distinctions between the 'real world' and 'observable world' as such that 'the real' cannot be observed and exists independent from human perceptions, theories, and constructions (see Bhaskar, 1978, 1979). However, according to modern cognitive scientific knowledge, mental events and processes presuppose the existence of reality of material things (Sheridan, 1999). Thinking of a bird, for example, implies the existence of a bird or a mammal with brain. Or a momentary event, such as the proverbial cat sitting on the mat, the mat, the earth under the mat, as well as a real human observer of the event. Although such form of representationalism does not come into an explicit clash with a critical realistic view of reality, it still implies that the relation between humans (subjects) and things (objects) is presented to us in a form of dualism (Heim, 1994).

But the human is not simply a subject who knows the independent reality of things through various mental categories such as duration, or cause and effect, because there is a layer of meaning to our experience of reality. We as human beings are thrown into a world that envelopes our lives in tangled networks of meanings (Wrzesniewski et al., 2003). As such, humans dwell not simply in the space where the objects and phenomena of the world intersect, but in a meaningful reality which can be found in our lifeworld of feelings, emotions, ideas, concerns, linguistic forms, artistic images, symbols, and rites (Beamer, 2017; Ehrich, 2003). The experience and production of meaning, frame our experience of reality as being real or illusory because the symbolic systems of meaning do not mirror reality perfectly, nor should it (Van Manen, 2016). As such, we cannot see or know anything except by the interposition of an artificial medium that produces meaningfulness, and is creative, going beyond the pure representation of sensory

experience to help us orient ourselves as being-in-the-world (Dreyfus, 1991, 2007; Dreyfus & Wrathall, 2008). There is thus a middle way in between the pure idealistic and realistic views, which is compatible with the socio-technical view in IS that focuses the use of modern technologies for producing meaningful experiences. A convincing example of such kind of technology that helps us orient ourselves as being-in-the-world and at the same time produces meaningful effects of escaping the world, is IVR.

2.2 What is Immersive Virtual Reality?

In order to answer the question what immersive virtual reality is, I must first define what 'virtual' means, because it is a central component of the IVR experience. Essentially, 'virtual' means the quality of being in essence or effect, not in fact (Heeter, 1992; Heim, 1994). In philosophy, scholastic philosophy for instance, philosophers view 'virtual' as not something existing 'actually' but as something existing 'potentially' (Metzinger, 2018). In addition to scholastic philosophical definitions, came definitions of 'virtual' to describe fictitious or imaginary things, for things that cannot become reality, but only representations of an existing reality (Coyne, 1994). Traces of this definition can be found in how engineers currently employ the term 'virtual', especially in situations where they can effectively substitute computers and peripheral devices in place of human senses. As such, a non-immersive 'virtual reality' was originally viewed as a computer-simulation of natural senses (Kugler, 2021). Early definitions of virtual reality confirm the computer-simulated view:

Virtual reality is a technology that convinces the participant that he or she is actually in another place by substituting the primary sensory input with data received produced by a computer. (Heim, 2000, p. 220-221)

Virtual reality is electronic simulations of environments experienced via head mounted eye goggles and wired clothing enabling the end user to interact in realistic three-dimensional situations. (Steuer, 1995, p. 35.)

However, with the steady progress of modern virtual reality technology, the ultimate realization of a virtual reality is currently accomplished through head-mounted devices such as HTC Pro Vive, Quest Pro, to immerse subjects in lively, dynamic, virtual worlds (Leder et al., 2019). As such, the IVR is currently considered to be an extended and immersive form of experiencing the world we are situated in as human beings. This peculiar kind of experience is designed with the intention of combining or mirroring the physical world with a digital twin world that is able to interact with each other (Hudson et al., 2019). IVR technology does thus integrate the five traditional senses, including sight, hearing, smell, taste, and touch to provide an immersive experience that relies on multimodal sensory cues such as visual, auditory, olfactory, haptic, and social cues (Sagnier et al., 2021).

Moreover, the IVR provides human beings to create virtual worlds within other virtual worlds that represent elements of our reality with elements that are projected by the imagination (Slater, 2018). Hence, the term 'immersive virtual reality' is in itself a loaded term filled with ontological assumptions of what constitutes a reality as being perceived as 'real/unreal' or being created as 'real' (Metzinger, 2018). The most notably employed ontological assumptions derive from a worldview that combines direct realism combined with Cartesian dualism. Or to quote early words of Penny (1993, p. 20): "[...] virtual reality reinforces the Cartesian duality, replacing the experiential body with a body image [the virtual body], a creation of mind." Even today nearly 30 years after Penny's (1993) definition of virtual reality, the experience of a body in IVR is directed towards the visual representation of a body which aims to resemble a shape or image of the body. In other words, the ontological assumption behind such presentation of the body, is that we are not interacting with a 'real' body because it is only a virtual representation that derives from a fact about what the body is in the 'real world' (Brooks, 1999).

Implications of such an assumption can for instance be seen in how certain IVR environments are designed to simulate 'real-world' scenarios or events according to representations of them, whether it is in the context of education and learning (e.g., Radianti et al., 2020; Fromm et al., 2020), competence development (e.g., Radhakrishnan et al., 2021), health and safety (Nichols & Patel, 2002), evacuation and safety training (Leder et al., 2019; Pedram et al., 2020), or entertainment such as games and interactive storytelling (e.g., Ryan, 2015). Hence, the representational design of IVR environments create factual meanings behind what is 'real' and 'reality' as if "[...] each of us was locked within a single, solitary cell and connected to the world beyond by nothing more than a combination of video, audio, and other information systems, coupled perhaps with some device for remote manipulation." (Malpas, 2000, p. 112). This means that "[...] virtual reality is a literal enactment of Cartesian dualism, cocooning a person as an

isolated subject within a field of sensations and claiming that everything is there, present to the subject.” (Coyne, 1994, p. 68). Or in other words, an uncritical adoption of a Cartesian dualism separates the rich IVR experience as distinct from either pure dreaming or pure interaction with the physical world, whereas a phenomenological view would be to illuminate the nature of a ‘world’ that represents something different from other experiences.

However, as long as we continue to follow such dualistic mode of what we appreciate to be real or not in an IVR, we risk treating it as a static world, rather than as a purely lived meaningful experience. But as recent studies show (e.g., Smutny, 2022; Suh et al., 2005; Valmaggia, 2017), the behaviors, and feelings which we adopt from an IVR experience, have a real impact towards our behaviors and feelings outside the virtual world because we bring the meaning of those experiences with us back and apply them to our everyday lives. Other studies show how we bring meaningful activities, and real concerns that matter to us, with us into the virtual world of IVR, such as for instance the IVR world of sleepers where people meet and fall asleep together (Maloney & Freeman, 2020). And from a philosophical perspective, the ‘realness’ of something is not necessarily demarcated to its characteristics of being measured, but rather, a fairytale or a character that we can identify our imagination with is equally ‘real’ for the perceiver (e.g., the wizard of Oz). In other words, there seems to be a ‘real’ quality embedded in experiences that are, on the surface, considered as ‘not real’, such as the IVR experience. Then why should we insist on treating IVR to be less ‘real’ than the physical world which we consider to be the reality? Perhaps this question can be answered by looking closer at the IVR experience and what it is that distinguishes it as being immersive.

2.3 What Signifies the Immersive Virtual Reality Experience?

One explanation towards why thinkers of our time insist on addressing the IVR experience as different than our everyday experiences outside IVR, is because ‘we know for a fact’ that the virtual reality is based on a layer of ‘illusions’ (Grau, 2003). ‘We know for a fact’ that realism in IVR is mediated through representations of entities in the real world, including representations of objects, events, actions, or a cause-and-effect (e.g., lifting a chair, throwing a ball) (Loomis, 2016). However, as pointed out earlier in this paper, representationalism is not only applied to our understanding of the virtual reality, but also to everyday reality that is not virtual. For instance, in cognitive science, the notion of indirect realism presupposes that when we see a tomato, we do not see the tomato as it is, but a visual representation of all the facts that leads us to believe that we are seeing a tomato (e.g., the red light, shape, qualia) (Johnson-Laird, 1983; Hovhannisyan et al., 2019). From this perspective, everything that is real is a mere representation, even the representations in virtual reality. However, with the feeling of ‘being-there’, which signifies the feeling of mentally transporting the senses from the physical world to the immersive virtual world (Biocca & Levy, 2013), the experience of an immersive virtual reality becomes a symbiotic world of the physical and virtual (Saker & Frith, 2020).

As such, the immersive experience is different from other experiences because the symbiotic world relies on ‘immersion’, a quality that mainly refers to the development and change of mental state from one world to another (Petersen et al., 2022). Another way of describing immersion is as “[...] a form of spatio-temporal belonging in the world that is characterized by deep involvement in the present moment.” (Hansen & Mossberg, 2013, p. 212). Another way of characterizing immersion is through the feeling of embodied presence and increased interactivity; presence being the quality of how “[...] one feels present in the mediated environment, rather than in the immediate physical environment.” (Biocca & Levy, 2013, p. 36), which is true when one’s attention is fully directed towards the IVR environment and not the physical space. It is through the feeling of increased presence that the realism of interactivity becomes a convincing representation of the physical world (Mütterlein, 2018).

Additionally, in the IVR, what we experience as real, and thus who we are, or choose to be, is up to us due to the possibility of exploring hypothetical scenarios that do not have an extensible cause-and-effect, as it would have in the physical world (Bailenson, 2018). For example, if my avatar jumps down from a building in the immersive virtual reality, I do not experience any effect of pain or death as a cause of falling to the ground, as I would most probably do if I conducted the same action in the physical world. Nor do I have the possibility to teleport myself in the physical world, as I do in the virtual one, where I can transport myself from one virtual world to another one without moving my entire body. At the same time, one might find reason to react emotionally in VR, such as for instance crying to an immersive movie or becoming intellectually inspired through debates in social VR. Both the ‘supernatural’ and subjective qualities, together with the ability to provide realistic representations of physical entities, distinguishes the IVR experience thus as feeling both real and imaginary (Bodzin et al., 2020).

For example, the realness of physical immersion is manifested through feeling of being surrounded by things presented on a screen, the feeling of walking freely around in the IVR environment and interacting with objects, just like in real life. An example that illustrates this feeling, is the new type of digital reading, known as 'IVR reading', which provides a multimodal experience that allow users to gain and interact (bodily and intellectually) with multiple types of information such as text, image, video, narrative audio and 360 virtual environments (Wang et al., 2020). The imaginary feeling of psychological immersion, however, supplements the physical one by providing the end-user with a psychological care for activities in the IVR environment which leads to a certain feeling of 'selflessness' in terms of one forgetting about time and ignoring the influence of perception (Mangfang, 2021). However, the question of whether or not the IVR experience is 'real' can become rather pointless because individuals have the possibility to transport themselves to a world that feels meaningful and that extends their reach of freedom by allowing them to transcend the natural impossibilities of the physical world (e.g., teleportation). Then the question of 'realness' is not as meaningful as questions that highlight what the IVR experience is like, how we should understand it, and what we as scholars can learn from inquiring the experience from a phenomenological perspective (Metzinger, 2018). One way of addressing these kinds of questions is through the idea that the IVR experience is an escapism (Konzack, 2018).

2.4 Why is the Immersive Virtual Reality Experience an Escapism?

"Escapism" comes from the term "escape", a term that has its origin in the Latin term "excappare", which literally means get out of one's cape, leave pursuer with just one's cape (Kim, 2015). As a phenomenon, "escapism" is usually associated with being something negative, such as a mental diversion from unpleasant or boring aspects of daily life, typically conducted through activities involving the imagination or entertainment (Konzack, 2018). According to this negative view of escapism, people turn to run away from their reality at hand due to low life satisfaction. Here, Evans (2001) classifies escapism as being a type of avoidance from real world problems, doing activities in a passive way, which leads to procrastination, denial, addiction to what we escape to (e.g., entertainment), or psychosis of confusion between what is real and what is not.

On the other hand, there is also a positive view on escapism that advocates how the imagination and technology allow people to escape from a narrow world into a broader one, allowing their minds to travel to places the body cannot go (Hazzard, 2016). The contrast and stereotypical view would be that the negative form of escapism occurs when people escape from the possibility of a broader world into a narrower or safer one, and thus avoid taking difficult actions that the body is capable of accomplishing (Siricharoen, 2019). This view is, however, not entirely true because sometimes it is healthier to, temporarily, leave the physical world behind and enter a virtual safe space that allows people to learn how to manage dangerous tasks, without injuring themselves (Kim, 2015).

The success of escaping to the virtual world can be determined by the degree of transportation and increased sense of 'being-there' away from the unwanted feelings caused to us in the physical world (Hartl & Berger, 2017). There are examples of how the IVR experience stimulates a form of escapism for people that are affected by loneliness, where they escape from their feeling of being lonely in the physical world by becoming situated with others in the virtual one (Konzack, 2018). Other examples include social worlds in IVR that provide people a common place to sleep and wake up together (Maloney & Freeman, 2020), whereas additional examples include how IVR positively changes human behavior by enabling 'safe spaces' that allow the users to experiment with their identities, thoughts, and ideas, without risking becoming embarrassed or socially punished (Morélot et al., 2021). This includes safe spaces for training (Pedram et al., 2020), video-gaming for people with disabilities (Boddington, 2017), reducing prejudices and increased empathy towards others (Herrera, 2019), and intensifying compassion for homeless people by living as a homeless in the virtual reality (Jacobs, 2019). Moreover, the IVR experience enables people to shift from mindlessness in the physical world, to mindfulness in the virtual world to calm down and momentarily forget about difficulties and unwanted feelings from the 'real' world (Yengin, 2017).

However, it is when users disconnect themselves entirely from the physical world that escapism leads to negative implications, such as becoming an unhealthy addiction (Kim 2015) that reorders human senses and changes the perception of what is real or not (Hazzard, 2016). On the other hand, the idea of connecting with people in IVR and not being users' own selves, fascinates people because they can then escape from their own personal identities and present alternative ones without direct consequences (Siricharoen, 2019). This constant tension between positive and negative effects of escapism in IVR (e.g.,

Hazzard, 2016; Yengin, 2017), makes it compelling to ask how the IVR experience becomes a meaningful escapism.

3 The Phenomenology Inspired Inquiry

In order to explore how the IVR experience becomes a meaningful escapism, the point of departure for such an inquiry must start from the point of the IVR experience. Hence, this paper will draw on a phenomenological approach to explore how the IVR experience becomes a meaningful escapism, because phenomenology's primary task is to explore and understand the phenomena that are situated in our first-hand lived experiences (Sokolowski, 1999).

Indeed, it is difficult to define phenomenology in a way that covers all its diverse traditions and trajectories (Spielberg, 2012). However, in general, phenomenology may be described as an effort to disclose the features or presuppositions of the world as given in the lived experience (Zahavi, 2018). The lived experience refers to the experiences and choices that a person has in a given situation, and the knowledge that the person gains from these experiences and choices (Van Manen, 2016). Phenomenology starts an inquiry by exploring the lived experience and looks for an a-theoretical comportment and holistic interpretation of that experience that goes beyond a Cartesian dualism (Sokolowski, 1999). The primary focus of a phenomenological inquiry is thus to explore phenomena through our lived experiences (Lyotard, 1991), by entering the lifeworld (inner world of feelings, concerns) of human beings (Zahavi, 2003), rather than focusing on the theoretical and objectifying where the emotions are barred and the lived experience cleansed (Sokolowski, 1999).

Subsequently, there are different streams of phenomenology ranging from viewing the lived experience as a phenomenon of our consciousness (Husserl, 1962), to studying the perception of bodily lived experience (Merleau-Ponty, 1982), to the lived experience as the primordial mode of Dasein or being-in-the-world (Heidegger, 1962). For this study, the latter view of Heidegger is employed to unveil the "[...] existential empirical meaning structures of a certain phenomenon." (Van Manen, 2016, p. 348). The Heideggerian phenomenology is no stranger to the IS field nor cognate disciplines (e.g., human-computer interaction), where Heidegger's concepts from his magus opus 'Being in Time' (Heidegger, 1962) have been well appropriated to investigate different ideas and topics. Table 1 depicts illustrative studies in IS that have employed Heidegger's phenomenology.

Table 1. Phenomenology in IS Research: Illustrative Examples

Author(s)	Topic	Synopsis of Conclusions/Findings
Dourish (2001)	Embodied Interaction	Employs an Heideggerian ontology to conceptualize embodied interaction – an approach to interacting with software systems that emphasizes skilled, engaged practice rather than disembodied rationality. Through a phenomenological perspective, the author looks at how tangible and social approaches to interaction are related, how they can be used to analyze and understand embodied interaction, and how they could affect the design of future interactive systems.
Ehn (1988)	Work-Oriented Design of Computer Artifacts	Employs, among other philosophies, an Heideggerian phenomenology to propose a philosophical foundation of design of computer artifacts, which focuses the everyday practice the point of departure for employing a phenomenological design ontology.
Harnesk & Thapa (2016)	Information Security	Employs Heidegger's notion of technology as ready-to-hand equipment to re-conceptualize information security as 'equipment-as-experience' and to understand the ontological position of information security in everyday practice, being a socio-technical phenomenon.
Introna (1997)	Cyberspace and Being	Employs Heidegger's concept of Dasein (being-in-the-world) to conceptualize the being of cyber-traveler as someone who is already involved in the world, rather than being an instance of the cyberspace as a practical manifestation of a plastic hyperreality.
Mingers (2001)	Embodiment of Information Systems	Highlights the contribution of phenomenology to IS research and provide arguments for how the disciplines of IS and AI need to become embodied – that is, they must move beyond the dualism of mind and body to recognize that human cognition and social action are inherently embodied.

Osmundsen et al. (2022)	Affordance Theory	Employ an Heideggerian concepts of 'familiarity' and 'referential-totality' to explore the relation and perception of affordances in IS.
Monod et al. (2022)	Integrated Framework for IS Research	Explicate the duality of Heidegger in IS research by focusing Heidegger's work on 'presence' and 'relations' in the context of human situated practice. The authors advocate the Heideggerian perspective as a powerful theoretical lens for understanding both the subjective and objective poles of our being-in-the-world, as it provides an integrated framework for IS research.
Riemer & Johnston (2017)	Ontological Inseparability	Employs an Heideggerian relational ontology of equipment to clarify ontological inseparability and the reason why IS researchers must engage with the 'being of IT' in order to adequately deal with the increasing ubiquity of IT in practice.
Riemer & Johnston (2011; 2014)	Rethink the IT Artifact	Both papers set to rethink the place of the IT artifact in IS by using Heidegger's analysis of equipment. The authors emphasize a holistic understanding of how IT as equipment is interwoven with other equipment, user practices, and individual identities. This inspires IS scholars to rethink what are central and peripheral concepts and phenomena in the IS discipline.
Waller & Johnston (2009)	Ubiquitous Computing	Employs Heidegger's notion of equipment to explain why artifacts designed using traditional model of computing tend to get in the way of what we want to do. The authors' Heideggerian analysis show that the design of computer artifacts needs to direct the physical and cognitive availability to the future of possible actions and change.
Winograd (1995); Winograd (1987)	Design of Computer Systems	The authors employ Heidegger's phenomenology to develop a foundation for design as well for understanding computers and cognition.

As way of advancing the phenomenological discourse in IS, of which Table 1 provides a 'snapshot', this study focuses specifically on using Heidegger's notions of meaning and meaningfulness in relation to his view on 'world'.

3.1 Heidegger's Phenomenological View on World, Meaning, and Meaningfulness

For Heidegger (1962), the main philosophical concern in his most influential work, 'Being and Time', was the existential question: what does it mean to be? As a response, Heidegger (1962) elaborated his notion of 'Dasein', also known as 'being-in-the-world' (Dreyfus, 1991), as something significant to what it means to be. Consequently, 'world' for Heidegger (1962) depicts reality as many worlds, rather than only one world of physical entities that is externally independent from the human being, as the Cartesian dualism advocates (Sheridan, 1999). Instead, for Heidegger (1962), humans are already thrown into a 'world' (e.g., a workplace) with meaning and a series of possibilities available to them in encountering and interacting with reality. As such, a world is made of practices, equipment, and skills shared by a specific community (Van de Walle et al., 2002) and can be multiple, local worlds – such as a family, a workplace, an industry, or society in general (Riemer & Johnston, 2017). Every human being is a part of some world (a broader, encompassing context; Dreyfus, 1991), which contemplates culture or established ways of living (Riemer & Johnston, 2017). It is through meaning and meaningfulness that people can then unfold the world as it gets presented to, or created by, them. World is thus based on familiarity with reality as a totality of meanings that gets revealed through space and time via the possibilities we create or seize hold of in our engagement with world (Critchley, 2020; Van Manen, 2017). Consequently, it is within the world that Heidegger distinguishes between 'meaning' and 'meaningfulness'.

Heidegger's (1962) distinction between 'meaning' and 'meaningfulness' is that meaning is regarded as intrinsic to a perceived experience as an embedded attribute that makes the experience intelligible, whereas 'meaningfulness' is the significance of which a particular lived experience has for the lifeworld (Van Manen, 2016). When we for instance speak about 'meaning', we put 'meaning' in the world of the experience as something that is representational and created in the world of our practices (Ehrich, 2003) such as creating meaning through signs, symbols, and words, in order to make an experience intelligible for the person. 'World', in turn, provides a source for the lived experience of meaning, which is the basis for extracting and contextualizing the value of meaning - e.g., the working environment of practitioners and the experienced meaning of work (Rosso et al., 2010), and the social environment of practitioners and the interpersonal relationships with co-workers as well as the asserted meaning of technology for their practices (Wrzesniewski et al., 2003). In other words, 'meaning' gets attributed as the intelligibility of an experience that is situated within a world– e.g., if the purpose of an activity 'fits' the context then the

content of the activity has meaning for the purpose of the activity (Van Manen, 2017). However, the experience cannot simply be intelligible (have meaning) in order for it to become meaningful (Heidegger, 1962), because the quality of the experience must also matter to our lifeworld (Van Manen, 2017).

In contrast to 'meaning', 'meaningfulness' is the subjective quality of experienced meaning as something that not only matters for a situation in itself, but for the lifeworld of the person (Van Manen, 2017). The lifeworld of the person consists of feelings, emotions, and concerns, all of which are comprised in the person's mood of being-in-the-world. According to Heidegger (1962), 'mood' is the various and specific ways in which Dasein can relate to and disclose the world of meanings, all of which occur against the backdrop of the structure of situatedness. As long as Dasein is situated and engaging with a world, Dasein is always in some mood, where even indifference is considered to be a mood (Heidegger, 1962). As Heidegger (1962) points out, the starting point of inquiry into a 'meaningful' experience should be with what Dasein cares about when worrying, and what Dasein celebrate when rejoicing in the dawning of new 'meaning' in experience (Elpidorou & Freeman, 2015). Along these lines, an experience becomes meaningful in the significant sense when mood and the experience are aligned with the lifeworld (Beamer, 2017). For example, a meaningful experience is something that is of concern for Dasein, something that he/she cares about (e.g., that matters to him/her personally, to his/her practice) and that is attuned with his/her mood (Van Manen, 2016). As such, both 'care' (e.g., being concerned of something) and 'mood' disclose how an experience becomes meaningful for the person in the world he/she is situated within (Ciborra & Willcocks, 2006; Freeman & Elpidorou, 2015). Table 2 depicts an overview of the characteristics of meaning and meaningfulness, according to the Heideggerian phenomenology.

Table 2. A Summary of 'Meaning' and 'Meaningfulness according to the Heideggerian Phenomenology

Meaning		Meaningfulness	
Representational	Meaning is referential for the intentionality (direction, purpose) of our lived experiences (Van Manen, 2016). For example, the lived experience of a carpenter is carpentry, refers to activities that make sense to the carpenter, such as hammering, pulling out nails, the function of different nails against different kind of woods. All these activities have meaning that represent the referential totality (Heidegger, 1962) of what it means to do carpentry by a carpenter.	Subjective	Meaningfulness is a subjective quality of the lived experience that matters to the lifeworld of the individual (Van Manen, 2017). Meaningfulness can be experienced through 'mood' as immediately meaningful and/or meaningful over time. For example, the carpenter might feel that it felt meaningful to build a particular house for a poor family because he/she felt that it elevated their life quality, whereas building bookshelves on a production line feels more like a recurring activity over time. The feeling over time is what discloses the mood of how he/she experiences meaningfulness.
Created	Meaning is created by human beings and imposed to the lived experience through the contexts, situations, and practices (Palmer, 2004). For example, the carpenter creates meaning by creating artifacts that make sense to their situation of use (e.g., a bookshelf used to put books in, a table used to put things on).	Experienced	Meaningfulness is experienced as touching the elements of one's lifeworld through 'care' (Van Manen, 2017). For example, the house that the carpenter built for the poor family touched his/her feelings and intensified his/her compassion, an experience that he/she will remember as being meaningful over time.
Attributes	Meaning is attributed to the lived experience through things, activities, symbols, language, and practices (Van Manen, 2016). For example, a hammer and nails (things) become properties of 'hammering the nails into a board' (activity), which entails the symbolic representation of 'hammering' (symbols) that is a common concept for the language game of carpenters (language) in carpentry (practice).	Significance	Meaningfulness is experienced once the activity or experience has a significance for the individual's lifeworld (Van Manen, 2017). For example, a trainee carpenter might have initial aspirations of becoming a professional carpenter. Over time, he/she will develop skills through practice and repetition that feels good and matters to his/her overall goal of becoming a professional carpenter.

In summary then, the main distinction between meaning and meaningfulness are that meaning is represented through explicit means such as language constructs, signs, symbols, activities, and practices (known as 'attributes' in Table 2) that helps us make sense of a situation or context as intelligible, whereas the experience of that situation or context becomes meaningful if it matters to our lifeworld (e.g., preferences, feelings). As such, according to Heidegger (1962), both meaning, and meaningfulness are interwoven with the world which we are thrown into. But how the reality of that world unfold itself for us to experience meaningfulness across or within world(s) is not totally clear, especially not because the IVR experience offers new ways of escaping the world of which we are situated within (Hartl & Berger, 2017; Kim, 2015).

Escaping the world today, is thus, not only directed towards an escapism that leads to literature or plain art, but an escapism that goes from one intelligible world to another that is mediated as a symbiotic reality (e.g., combination of physical and virtual worlds) of which the IVR experience facilitates (Saker & Frith, 2019, 2020). This particular kind of experience was not accessible for Heidegger during his time of living. Nor did Heidegger necessarily describe how meaning and meaningfulness are created/experienced within a world that reflects the combination of representationalism (e.g., representations of entities as naive realism) with projections of the imagination, something that is known to be a peculiar trait of the IVR experience (Bailenson, 2018; Metzinger, 2018). Hence, although being-thrown-into-the-world was a central theme of Heidegger's phenomenology, 'to escape' the world was not, whereas to 'transcend' the world was a central theme of Heidegger's phenomenology which in essence is similar when one escapes the immediate surroundings (e.g., daydreaming, reading). Thus, the Heideggerian phenomenology of conceptualizing meaning and meaningfulness in relation to the world, offers this study a holistic lens for exploring how the IVR experience becomes a meaningful escapism, especially because the Heideggerian notions of meaning and meaningfulness are interwoven to the experience of reality through world, as they would have not been in a dualistic worldview.

3.2 Operationalizing the Phenomenology Inspired Inquiry: Empirical Setting, Interviewing and Analysis

Having outlined the theoretical background of phenomenological approach with a focus on Heidegger's notions on meaning and meaningfulness, along with discussing his notion of world, this section outlines how the phenomenological inquiry was operationalized with respect to the setting of which the inquiry was undertaken, and the specific methods for data collection and analysis.

3.2.1 Understanding the Horizon of the Phenomenology Inspired Inquiry: Empirical Setting

In phenomenology, the 'horizon' represents the background of the lived experiences that a phenomenological inquiry takes place (Zahavi, 2018). In this study, the horizon was set against an empirical case of fire safety training in IVR together with Sweden's largest train company known as 'SJ'. Safety training is currently a growing application area of IVR (Dincelli & Yayla, 2022; Smutny, 2022), where organizations adopt IVR technology to prepare their employees for complicated and sensitive situations that require focus, attention, and increased safety awareness (Rojas-Sánchez et al., 2022) for managing safety issues (e.g., evacuation, hazards, fire). Safety awareness is an important part of the safety training in IVR because it has general implications for participants' overall situation awareness, which is the perception of the elements in the environment within a volume of time and space, the comprehension of meaning, and the projection of their status in the near future (Endsley, 1987; 1988). Improving participants' situation awareness can for instance be done through IVR training for increased safety awareness among practitioners in construction (e.g., Sacks et al., 2013) or mining (e.g., Pedram et al., 2020), enhanced industrial safety skills in manufacturing (e.g., Radhakrishnan et al., 2021), and development of fire safety behavioral skills (e.g., Çakiroğlu et al., 2019; Morélot et al., 2021).

Since late 2020, SJ provide their employees (e.g., train conductors, train drivers) with fire safety training in IVR. The purpose of exercising fire safety training in IVR was to equip employees with procedural skills (e.g., knowledge about how to accomplish something) that increase their safety awareness and prepare them for extinguishing fire onboard real trains. Hence, the design of the IVR training environment is based on ontological assumptions of reality according to a representational view (Cartesian dualism), which is currently designed to simulate fire safety training through representations of: (a) real train settings that the employees are familiar with from their work experiences; (b) fire safety instructions that are prompted multimodally (e.g., voice, text); and (c) mood that projects an atmosphere of danger and threat that is

presented through an audio-visual representation of animated fire and smoke onboard trains. Subsequently, the training episode was represented through a training scenario that consisted of the following steps:

1. A participant gets equipped with IVR equipment (HMD, hand control, fire hose replica)
2. An instructor quickly goes through the training scenario for the participant verbally, where the task of the training scenario is explained as identifying fire onboard the train and quickly extinguishing it
3. The participant is 'teleported' to the IVR training environment and initiates the training scenario
4. The participant goes through a trial-and-error process in order to identify and extinguish the fire
5. The participant and the instructor have a dialogue about the performance and learning outcome

3.2.2 Phenomenological Data Collection and Analysis

It was against the horizon that a phenomenological inquiry was operationalized. More specifically, the phenomenological approach inspired an inquiry that was conducted through: (i) data collection via observations of the fire safety training sessions and through what is known as 'phenomenological interviewing' (Bevan, 2014); and (ii) an analysis approach based on Eatough & Smith's (2017) 'Interpretive Phenomenological Analysis' (IPA). The structure of the interviews is depicted in Table 3, whereas Table 4 summarizes the analysis process and its constitutive elements.

Table 3. A Structure of Phenomenological Interviewing and Analysis (adapted from Bevan, 2014)

Phenomenological Attitude	Researcher Approach	Interview Structure	Method	Example Questions
Descriptive-Hermeneutic Attitude (Heidegger, 1962)	Acceptance of Participants' Attitudes	Contextualization by Eliciting the Lifeworld of Participants	Descriptive/Narrative Context Questions	"Tell me about becoming scared of the fire onboard train" or "Tell me how you came to be on the train"
	Reflexive Critical Dialogue with Self	Apprehending Participants' Sense of Situatedness	Descriptive and Structural Questions of Modes of Appearing	"Tell me about your typical encountering with fire onboard train" or "Tell me how you have been prepared for handling fire onboard trains"
	Active Listening	Clarifying the Characteristics of a Meaningful IVR Experience	Imaginative Variation: Varying of Structure Questions	"Describe how your attitude of caring for the situation would change if the fire was for real"

The phenomenological method of interviewing, as shown in Table 3, posits that the identity of an experience has modes of appearance and is experienced in many ways (Sokolowski, 1999). When conducting the phenomenological interviews, the interview questions were posed with self-consciousness of the employees' situatedness and prior experiences of IVR technology, which was operationalized by avoiding asking theory-laden questions (e.g., questions that are informed through theoretical terms and concepts). By undertaking the given interview structure, a total of 12 participants, ranging from being train conductors to train drivers to instructors, were enabled to provide answers that demonstrated the contextual elements that provide meaning to their IVR experience (e.g., how the participants interpreted the purpose of the safety training situation, the significance of the training scenario for increasing their fire safety awareness), and how the fleeting feeling of escapism affects their relationship to different senses of meaning.

In order to unveil and propose characteristics of the IVR experience as a meaningful escapism, the phenomenological interviews were followed up by an IPA in accordance with Eatough & Smith's (2017) recommendation. Eatough & Smith's (2017) recommendation has its roots in Heidegger's (1962) descriptive-hermeneutic phenomenology and stresses an analysis of an encountered experience. Here, the analysis approach stresses thematization through initial noting and exploration of themes that describe the lived IVR experience (Smith et al., 2009), which to the surface, is very much similar to the Grounded Theory approach in IS (see Urquhart et al., 2010). For this study, the steps of the analysis process were performed iteratively and relied on open coding and axial coding of the data (Eatough & Smith, 2017). The

process was supported by using the software NVivo 12 to create visual mappings for relationships between identified themes as characteristics of the IVR experience as meaningful escapism. These relationships were then axially coded to return a comprehensive perspective on the lived IVR experience as escapism. For example, the theme 'being transported to' related to the theme 'escaping reality' because 'escaping' reinforces the meaning of 'being transported to' the virtual reality.

Consequently, it was during this stage of axial coding that the characteristics of IVR experience as meaningful escapism were unveiled. Moreover, a total of 50 memos were written throughout the analysis process because memos are important for documenting insights and interpretations from the interviews. As such, the findings from the data analysis process are reported in a narrative form because it, according to Eatough & Smith (2017), incorporates a combination of: an overall description of a theme, or in this case a characteristic of the IVR experience as a meaningful escapism; detailed descriptions that are extracted from the transcribed material and provided in a 'pure' form (e.g., excerpts from interviews); and a distinct overview/summary of the narrative.

Table 4. Overview of the Data Analysis Process (adapted from Eatough & Smith, 2017)

Activity	Outcome	Example
Transcription	Direct Transcriptions	N/A
Line-by-Line Open Coding	812 codes formulated closely to the original wording	<i>feeling safe, fleeting the real reality, become familiar</i>
Focused Coding Grouping	17 initial themes were extracted based on the most significant codes.	<i>being transported to, escaping reality, being creative, becoming more imaginative</i>
Axially Coded Relationships	Extraction and mapping of themes of meaningfulness. Four characteristics of the IVR experience as meaningful escapism were identified.	<i>feeling safe relates to the opportunity of fleeting the real reality in order to become familiar with the challenges of fire safety situation during secure circumstances</i>
Memo-Writing	46 memos for documented insights and interpretations	<i>"The virtual reality reminded me about the trains from the real reality so to speak. It felt real until I saw the fire, you know, if it was a real fire I would feel the heat, sense the smoke, hear people saying 'fire', and experience the energy on the trains. The atmosphere of the situation would change tremendously if it was a real fire onboard a train. Now, I felt more secure and safe, because we know that the fire was not for real..."</i>

4 Characteristics of the IVR Experience as a Meaningful Escapism

This section presents the findings of the phenomenological inquiry in a narrative form, accordingly to the guidelines of reporting outcomes of a phenomenological analysis (Eatough & Smith, 2017). The analysis of the empirical material, along with the Heideggerian (1962) view on meaning, meaningfulness, and world, unveiled four characteristics that characterize how the IVR experience becomes a meaningful escapism. Through the phenomenological inquiry, it became also clear that 'experiencing meaningfulness' is close to 'feeling meaningfulness' through characteristics that unveil how we 'sense' the IVR experience as becoming meaningful. 'Sensing' relates to the sensory perceptions that are built into our experience, prior to a rationalization of it, which through a phenomenological point of view (Van Manen, 2016, 2017) derives from the idea that representations of phenomena cannot themselves be empirically detected in the brain, whereas the representation in itself can be interpreted as an intermediate step to understanding the phenomena that are represented. For example, if an end-user of IVR has stomachache, the end-user does not have a stomachache in the brain but can at least relate to the representation of it. However, if the end-user feels that the IVR experience is a meaningful escapism, the end-user does not feel the representation of it, but the lived experience of escaping the real world to enter the virtual one in IVR. As such, the end-user senses how it is meaningful for him/her. It is within this provided phenomenological reasoning, that the phenomenological inquiry for this study, unveiled four characteristics of meaningfulness and their features of escapism, which characterizes how the IVR experience becomes a meaningful escapism. Table 5 summarizes the characteristics, whereas a detailed description of each characteristic is provided below the table.

Table 5. Characteristics of how the IVR Experience becomes a Meaningful Escapism

Characteristic of Meaningfulness	Features of Escapism	Description
Sense of Content	Flow through World (creating meaning)	Refers to the quality of meaning in the sense of content that gets created and attributed to the IVR experience through the fleeting feeling of escaping a world. This includes the generative feeling of flow that emerges through the abundance of direct realism in virtual reality (e.g., no direct cause-and-effect), and transcendence of representationalism (e.g., overriding representational constraints from the physical world – e.g., walking through walls, teleportation, flying, not dying)
Sense of Familiarity	Orientation to/from World (recognizing meaning)	Refers to the network of meanings that extends our sense of familiarity with the world via the IVR experience. The networks are discovered through the fleeting feeling of escaping a world where we recognize meaning. This includes the orientation to/from a world of meaning within the syntactic dimension (e.g., signs and symbols), semantic dimension (e.g., language), and pragmatic dimension (e.g., actions, practices), of meaning
Sense of Mood	Imagining/Perceiving a World (enacting meaning)	Refers to the enactment of meaning depending on our sense of mood with the world that we bring with us to/from the IVR experience. On the one hand, the enacting of meaning is emulated by how we imagine the world (we bring a sense of mood into the IVR experience), whereas on the other hand, the fleeting feeling of escaping a world emulates our imagination of the world (we bring a sense of mood from the IVR experience)
Sense of Care	Agency/Becoming Possibilities in World (actualizing meaning)	Refers to the actualization of meaning through the agency/becoming possibilities of a world (e.g., affordances). Possibilities, and how they can be actualized through the IVR experience, are interwoven with a sense of care for the world in terms of how it has matters to us over time (historicity and temporality of meaning), and how by escaping the world we sometimes can actualize meaning in ways that are not possible otherwise

4.1 Sense of Content

The phenomenological analysis unveiled the first characteristic of how the IVR experience becomes a meaningful escapism through a 'sense of content', that is to say, the quality of meaning as it is sensed by us in the worlds we escape to. For example, the analysis showed that the train operators experience a 'flow through world' when the content of the IVR experience is aligned with the representation of the content. Here, content is referred to the layers of virtual reality elements that matter to their activity and that became available for them through the IVR experience. Example of such include, but is not limited to, the representations of fire and water in IVR, as illustrated in Figure 1.



Figure 1. Sense of Content: Representations of Fire and Water in IVR

Consequently, interestingly enough, the lack of direct realism of their sense of content (e.g., not feeling the heat of fire), was a key aspect to how the IVR experience became felt as a meaningful for the training participants. For example, throughout the course of the phenomenological interviews, several of the interviewees expressed a gratitude towards fleeing the physical world to the virtual one, in order to do the training exercises, because it felt safe. One of the train operators expressed this form of gratitude as:

I like to be away from the dangers that these kind of training exercises usually have in the real world, so to speak [referring to the physical world], because here [referring to the virtual world] I feel much freer to express myself without having to deal with any real consequences, such as getting burnt by the fire or failing to save real passengers lives. (Train Operator 1)

Another train operator reinforced his/her sense of content by elaborating how the IVR experience makes him/her feel completely present, both spatially and temporally, experiencing flow due to the lack of typical constraints one encounters in the physical world of safety training:

Everything had a flow to it when I did my exercise in the virtual reality because I did not even have to be concerned about the walls, furniture, or other stuff that is usually in the way. I know that it's not realistic to walk through walls or furniture onboard a train but still, I did not feel as constrained as I am used to during these exercises. (Train Operator 2)

Additionally, when the same train operator was asked how he/she felt about the feeling of being in danger or scared of the emerging fire, the train operator said:

I knew that the fire was not for real, so I mean, the content of the training scenario felt realistic without having any real consequences for us who had to extinguish the fire. In a real setting [referring to the physical world], I would have felt a bit more scared and stressed, but here [referring to the virtual world] I felt secure and safe because my actions had no direct consequences in the real world. (Train Operator 2)

So far, the implications of escaping the physical world of fire safety training to a virtual one, has been painted to be a meaningful one due to its positive implications for the respondents' lifeworld (e.g., feeling gratitude, safe, and secure). But as it was denoted earlier in this paper, the fleeting feeling of escapism can be felt as meaningful without having positive implications to how one conceives reality. For instance, just because it is convenient and thrilling to run through the fire in the virtual world, it does not mean that it would be positive to adopt this behavior into the physical world. But the very fact that you can do so in a virtual world and experience how it feels to run through fire without getting burnt, provides a sense of content that urges one to escape the constraints of a physical world. Similarly, one of the interviewees described this urge via the feeling of teleportation and 'being-there' in the virtual world as significant, but not real:

The feeling of teleportation and being fully present in virtual reality was unique for me because this was the first time, I tried it [referring to the IVR technology] out. I really felt present as in being there [referring to being in the virtual world]. Do I think it is for real? Of course not, but I still liked it and can see the value of doing dangerous training there [referring to the virtual world]. (Train Driver 1)

During the interview with the same train driver, the conversations raised questions about what he/she thinks would have happened with training sessions if the fire - which in this case was one of the central contents of the IVR experience - would have felt as being more realistic than it currently did. As a response, the interviewee replied:

I know what fire smells like, how it behaves when it becomes bigger, and the smoke starts to spread all over the place. None of these properties were sensed during the training exercise, but the fire looked real enough for the purpose of training, and it behaved similarly to how it behaves in the real world [referring to the physical world]. So, I am not sure, but I think perhaps if the fire was completely real, I would have been more on my toes and not wanted to repeat the training session over and over again, as I felt to when I was doing the exercises there [referring to the virtual world]. (Train Driver 1)

In summary, features of escapism become felt as meaningful because the end-user can teleport themselves to a world that extend representations of real-world entities, but with a sense of content that allows the end-user to create meaning through actions that would have not been feasible to

conduct in the physical world (e.g., experiment with fire without getting burned). Due to the supernaturalistic features of content (e.g., teleportation, walking through walls), the feeling of 'being-there' is a tempting feeling that inspires end-users to create meaning that matters to their lifeworld in ways that they might feel reluctant to do in a physical world. An example of such was the feeling of flow, something that is difficult to sense in a world where a sense of content can be felt as being dangerous (e.g., the sense of real fire). Hence, as also illustrated by the excerpts from the interviews, the combination of a convincing representationalism (e.g., representation of fire), with the lack of a direct realism (e.g., the fire does not burn anyone), provides end-users a sense of content that is seemingly free from negative implications of the content (e.g., knowing that the fire does not burn anyone). This is, however, only true within the virtual world, whereas adopting such a sense of content and applying it to the physical world, where fire does indeed burn, would not make any sense without having established a familiarity with the network of meanings that intersect the worlds (physical and virtual world).

4.2 Sense of Familiarity

The phenomenological inquiry further unveiled a second characteristic of how the IVR experience becomes a meaningful escapism through a 'sense of familiarity', that is to say, the networks of meaning we share, extend, and are absorbed into. As an example of how familiarity was established during the IVR fire safety training exercise, Figure 2 illustrates the location of a fire hose onboard a virtual train, something that the end-users could relate to, based on their representations of where the fire hose is usually located inside the trains they work with.



Figure 2. Sense of Familiarity: Location of Fire Hose inside a Virtual Train

The location of the fire hose in the virtual world, provided the end-users an initial clue of where the fire hose can be located in the virtual world during the IVR training session. At a different occasion, however, the fire hose was placed at a different place in the virtual world, making it difficult for the end-users to derive the location of the fire hose from their representations of where the fire hose usually is located inside a real train. But by extending the network of meanings that the end-users were familiar with from their prior experiences (e.g., knowing the location of the fire hose inside a real train), the virtual world provided cues (e.g., signaling indicators of proximity/distance to the virtual fire hose) for the end-users so that they could sense where the fire hose was located. One of the train operators elaborated this point by saying that:

I definitely recognized one of the trains. It looked exactly like the ones we work with, the signs, colors... this helped me orient myself better during the training scenario because I was already familiar with the train and its surroundings. But it was the indicators of how far away I am from the hose that made me feel closer to finding out where the hose is in the train. (Train Operator 3)

In other words, the added features inside the virtual world, provided the train operator an added layer of meaning (e.g., indicator that signaled proximity/distance to the fire hose) that enhanced their sense of familiarity. Additionally, as the train operator mentioned in the excerpt above, his/her sense of familiarity helped him/her to 'orient' himself/herself better during the training scenario. This aspect of

orientation had to do with orienting the network of meaning as they were presented in the virtual world, whereas the participants knew elements of the virtual world only represent the ones from the physical, but do not always function similarly. But how about the orientation to and from the different worlds, how did that stimulate a feeling of meaningful escapism? As a response to this question, the same train operator answered:

Well... I think that it is much easier and forgiving to these kinds of exercises there [referring to the virtual world] than here [referring to the physical world]. I can definitely orient myself around in the different scenarios and surroundings as long as I recognize them, but at one time, I remember that I was teleporting from one place to another one in virtual reality, and I became rather dizzy and had difficulties orienting myself in-between the places I teleported to .Eh, I mean, how often can you teleport yourself in the real world and experience five to ten different surroundings in less than 2 minutes [laughing]?
(Train Operator 3)

And when asking the same respondent to talk more about the feature of teleportation and in what ways he/she felt it was meaningful for the overall experience, the respondent replied:

Yeah, it was really cool, but I mean, it's like browsing the Internet, isn't it? I mean, it's like going from one page to another one on the web quickly through one click, with the difference that this is so much more interactive and fun and potentially addictive, I guess. I can see the value of teleportation between different stations and trains for instance, to easily become familiar with all surroundings and train for that in virtual reality, definitely.
(Train Operator 3)



Figure 3. Sense of Familiarity: IVR Hand Controls used for Teleportation in IVR

Another train operator, however, had a different kind of answer when asked a similar question during the interview:

Reality does not work like this. If want to go from point a to point b, I must use my body and some kind of transportation to transport myself. I cannot simply teleport myself. This is quite deceptive in a way, and I am not sure if will benefit our training because the body has a sense of memory and I am not sure if it would be meaningful to program it like this, it can become harmful if we are too relaxed under these kind of circumstances with fire.
(Train Operator 4)

The same respondent was then asked if he/she could elaborate further on how he/she thinks that the IVR experience affects his/her sense of familiarity and orientation in the physical world, after doing repetitive training in the virtual reality. As a response, the train operator replied:

I think for an experienced person like me, I would not have any difficulties finding myself around in a train because I have worked with this for so long now. But, eh, for a beginner,

if he or she does not have any real-world experiences of trains, fire, or other kind of dangerous situations, I think it would become difficult to orient himself/herself in the real world if the virtual reality was, like, you know, a starting point to become familiar with our reality [referring to their workplace and practice]. (Train Operator 4)

In summary, the features of escapism become felt as meaningful due to the networks of meaning that are extended in IVR to provide end-users a sense of familiarity, which allow them to orient themselves in worlds that make them feel free and less constrained. But at the same time, the fleeting feeling of escapism can be experienced as both appealing and seemingly deceptive. This confirms previously discussed features of escapism as being a dual sword. For example, on the one hand, the feature of teleportation was tempting to use during the training sessions because it enabled easy transportation, whereas on the other hand, teleportation does not work in the physical world and can thus become a bad habit. In the virtual reality, the respondents could see the fire from distance, click on a button to teleport themselves to the fire (regardless of how large the distance is or not), and then extinguish the fire. This particular feature might feel sufficient to use in order to accomplish a task sufficiently in the virtual world, but the feature might have not been as sufficient to use in the physical world. Still, it is tempting to escape the physical world to a virtual one because:

As long as people can orient themselves in this world [referring to the virtual world], navigate around and find meaning in training in a virtual reality, I think we will move away more and more from the real world because it is much safer and more exciting and free for everyone to eh... to... be there doing the exercises [referring to doing fire safety training in IVR]. (Train Operator 4)

4.3 Sense of Mood

The phenomenological analysis unveiled a third characteristic of how the IVR experience becomes a meaningful escapism through a 'sense of mood', that is to say, the mood that either makes us want to escape reality (e.g., the world we are temporarily situated in and engaging with), or the mood (e.g., atmosphere) that the IVR experience offers to the end-users. For instance, the mood situated in the physical world might cause the end-user to escape, whereas the mood in the virtual world might provide a mood of meaning that is tempting to engage with (e.g., mood of safety, mood of freedom). As such, the mood that we experience in both worlds (physical world, virtual world) has a bearing for our enactment of meaning in terms of what we appreciate to be meaningful for our lifeworld. Enactment here refers to how mood affects our assumptions that we make about what we believe is, or will be, meaningful for us in a given situation over time. Data from the analysis illustrated this point, where one of the train drivers had prior experience of using IVR technology to play adventure games; playing games in IVR is an immersive and entertaining experience that many people find as an urging form of escapism. When asked whether or not the train driver had looked forward to conducting the fire safety training sessions as an IVR experience, the train driver replied:

I love playing video games in virtual reality, it is fun, feels exciting because it feels real you know, and it is explorative in a way that allows me to explore other realities in a very, eh, different way. So yeah, once I heard that we were going to do training like this [referring to the IVR fire safety training], I for sure looked forward to it. (Train Driver 2)

Judging by how the train driver expressed himself/herself, it seemed that he/she had a positive expectation for conducting the training sessions in IVR due to his/her prior experiences of playing games in IVR. His/her mood was thus expressed as feeling a desire for escaping to the virtual world. Subsequently, when the same respondent was asked in what ways the IVR safety training experience lived up to his/her expectations, the train driver responded:

It was kind of fun I must say, because for me, it felt like a game. I could definitely see the game elements in the training scenario. I mean, the design was nice, and it was quite easy to navigate the scenario, even when the fire hose started to glitch [laughing], I started to laugh, especially because I could still extinguish the fire although the hose was directed at a different direction that it was pointing in the real world [referring to the fire hose replica in the physical world]. (Train Driver 2)



Figure 4. Sense of Mood: Fire Hose Replica and the Virtual Glitch

As indicated in the excerpt above, the 'glitch' of the fire hose in the virtual world, changed the mood of the IVR experience from being felt as rather serious, to becoming funny for the respondent (e.g., the respondent started to laugh), especially because the fire hose still behaved correctly (e.g., it extinguished the fire regardless of the direction of the hose). The sense of mood that the respondent brought with him/her from the IVR experience made him/her reflect upon how the IVR experience can be meaningful to revisit if the experience glitches and does not manage to represent a correct picture of the physical world. At the same time, the glitch triggered the respondent's imagination and view on what the glitch means (e.g., if it is real, if it has a bearing towards the assignment) and if it represents a glitch in the physical world. Even in the physical world, it is often difficult to pin-point how an anomaly emerges and what chain of causality that produces the anomaly to begin with. Similarly, the glitch seemingly represented an anomaly because the fire hose behaved and functioned differently in the virtual world:

When I think about it, I think it [referring to the experienced glitch] might influence my imagination and view on reality, and the behavior of a hose. I mean, the glitch made me think like 'oh, perhaps I should experiment a bit with the hose in the real world and see what happens', you know what I mean? Like, the glitch made me not take the hose for granted in the real world... I am not sure if this makes any sense [laughing]. (Train Driver 2)

As the train driver indicated above, the mood of the IVR experience might affect the imagination and perception of reality, and thus, the mood of the recipient. Is this a feature of the IVR experience that the respondents found meaningful? If so, how did it affect their urge of escaping the physical world to revisit the virtual one? Two of the respondents replied the following when asked these questions:

The good thing with doing these kinds of exercises in the virtual reality is that I have time to experiment back and forth without any given stress. This allows me to back and do the exercises over and over again... Another good thing is that it [referring to the IVR training experience] makes me feel a bit more creative because it's much more fun than doing the exercise in the real world, it is fun and entertaining and I learn the stuff I need to learn, so I would like to have this world to go to whenever I want without any hesitation, I think [laughing]. (Train Operator 5)

I can see why people that use virtual reality like it. It is like a totally different world that I can visit and be in, but it still reminds me of the real world. It feels quite realistic... although I can also see why people get sick or dizzy because the experience is so absorbing, and I feel transported to this other world. It makes me curious to explore the world more and more, in general I mean, not only for training purposes but also for – as someone said earlier during the training session – getting closer to the imagination perhaps... (Train Operator 6)

In summary, the phenomenological inquiry unveiled how the features of escapism become felt as meaningful through a sense of mood that affects the enactment of meaning and how the mood of the IVR experience stimulates end-users' imagination of reality. For example, by escaping the physical world to the virtual one, the respondents' felt that they might be able to increase their ability to imagine a world in the virtual reality. In turn, as indicated by one of the respondents, it becomes tempting to explore other potential worlds that are 'out there' in the virtual reality, while at the same time doubting whether or not such an exploration would be a durable one due to how demanding the IVR experience

can be for one's senses (e.g., becoming dizzy, feeling sick). At the same time, as data from the interview illustrated, escapism can lead to extreme points where the imagination might overtake our sense of reality and lead us to an entrapment of illusion that feels meaningful in the virtual world but is meaningless in the physical world. As such, the IVR experience has not only the ability to emulate our imagination, but it also possesses the power of challenging our perception of the world we are situated in by projecting layers of illusion through the mood that we feel in the virtual world. This implies that the designer of the virtual world can manipulate the mood of the IVR experience, in similar way that the mood in a physical world change depending on external actions and stimuli (e.g., other people's behavior). Yet, the value of our mood depends on the external actions' consequences, which varies in the virtual world compared to the physical one – e.g., the cause-and-effect of burning our tongue while drinking hot chocolate in the physical world only happens because of our bodily experience, whereas in the virtual world, an imitation of burning our tongue would not cause any pain to us and thus have a different consequence.

4.4 Sense of Care

Finally, the phenomenological inquiry unveiled a fourth characteristic of how the IVR experience becomes a meaningful escapism through a 'sense of care', that is to say, the possibilities of actualizing meaning as it would matter to the lifeworld of an end-user. The actualization of meaning, through a sense of care, becomes meaningful when the end-user feels a sense of agency or a way of 'becoming' the possibilities that he/she senses in the IVR experience. The possibilities of becoming can in turn be perceived or sensed via the affordances of an IVR experience, in terms of: what possibilities are there available in the IVR experience and how do I find them to become (actualized) meaningful for me? Here, there is an aspect of historicity and temporality of meaning, which affects the end-user's attitude towards how much the IVR experience means to them over space (e.g., physical world versus the virtual world) and time (e.g., before, during, and/or after the IVR experience). For example, if a participant is attending the virtual world for training purposes, then his/her care is directed towards concerns that has to do with his/her professional identity (e.g., learning how to extinguish fire onboard a train to save people), whereas the same virtual world can be a place for hedonistic escapism that allows the same participant to express rather sick cathartic behaviors (e.g., burning down the entire train and laughing about it). However, when simply asked how the participants of the IVR training found the IVR experience meaningful for them privately and/or for their practice, some of the respondents replied as following:

As an instructor for the company, I find it meaningful to use virtual reality because it provides safety for our participants, and I do care for them and their well-being...
(Instructor 1)

It felt meaningful when we did the exercise because it made sense, but I am not sure if it is meaningful once I face a really dangerous situation with fire onboard a real train, you know. (Train Operator 6)

It is meaningful if you have prior experience of a real situation like the one we trained for in virtual reality, because then you have a frame of preference that is realistic I guess... otherwise, it's just imagination, not real, and why should I care about it if it [referring to the training exercise in IVR] does not help me in the real world? (Train Driver 2)

Judging by how the responses above utter different views on how and when the IVR experience might become meaningful for the respondents, it seems that a sense of caring for the IVR experience is congruent with a sense of caring about the world one is engaging with. Does this mean that an end-user must be able to actualize meaning in both the physical and virtual world(s) in order for the IVR experience to become meaningful? Are there situations where it might feel meaningful to just actualize meaning in a virtual world alone? When asked these questions, one of the respondents replied by saying that:

I feel it is meaningful to be able to do stuff in the virtual reality without anyone judging me and my performance. I mean, I can do several mistakes during the training sessions... and it is acceptable because the consequences are not for real... and they do not harm anyone nor cost anything. It [referring to the virtual world] is a good escape place, you know, it's a forgiving place... (Train Operator 6)

The respondent's answer reflects how the virtual world can be used as a safe space for repetition through a process of trial-and-error where the consequences of one's actions do not have a symmetrical effect

between what consequences in the virtual world and the physical one. When asked the same questions as the previous respondent answered, another respondent answered the following:

There might be situations where I want to train alone and experiment with different ideas alone. Virtual reality allows me to accomplish this and that is meaningful. But I cannot always escape to the virtual reality, right? I mean, if I would face a fire onboard the train, I couldn't simply escape that situation. So, what I'm trying to say is that it would be meaningful if I could apply the stuff we learn in virtual reality to the real world. (Train Driver 2)

The respondent above indicated an interesting point when he/she said that it would not be possible to escape the real world when encountering a real fire onboard a real train. In other words, the fleeting feeling of escapism seems to be altruistic when it serves a purpose, a meaning for a situation that we care for, if it is possible to actualize the meaning in that situation (e.g., actualizing the knowledge of how to press the fire hose in order to spread water over the fire). But if it is not possible to actualize the meaning, then the experience might become meaningless for the encountered situation:

Just to qualify what I meant previously, I think that we must see the bigger picture of what we are doing in virtual reality, like, it is a different world with different rules that seem real but are not real. We must remember this when we enter that world otherwise, we might develop a rather naïve attitude that makes us helpless in dangerous situations. (Train Driver 2)

However, as discussed earlier in this paper, an experience becomes meaningful when the value of that experience fits the individual's lifeworld, rather than merely serving the purpose of a given situation. So, when do we know when it is meaningful to escape the physical world in order to actualize? When asked this question, the same respondent answered the following:

I can only speak for myself, but I think it becomes meaningful to escape the physical world when we start caring about the bigger picture I was mentioning before. Otherwise, why should I even bother if it doesn't matter to me? (Train Driver 2)

In summary, the phenomenological inquiry unveiled how the features of escapism become felt as meaningful due to a sense of care that is related to the possibilities an end-user must actualize meaning for his/her lifeworld. This relationship is important in order for the IVR experience to become felt as meaningful for the respondents. At the same time, the fleeting feeling of escapism might not always be possible to actualize when one is facing reality under critical circumstances (e.g., encountering a real fire onboard a train). During such circumstances, it is not possible to for instance push a button to teleport away from the encountered fire in the physical world, whereas in the virtual world it is. This discrepancy of cause-and-effect raises the question of how knowledge acquired in the virtual world gets transferred to the physical world? Moreover, caring for a situation is nothing we always choose, but sometimes become forced to cope with it, while the quality of how we care and react in both worlds (physical and virtual) creates a tension. It is during such situations that escapism is not felt as directly meaningful, whereas the skills (e.g., how to extinguish a fire) one acquired from past escapisms to the virtual world, might become meaningful if they are applicable to the encountered situation in the physical world (and vice versa). Hence, both historicity and temporality of escapism are properties that matter for how the IVR experience becomes meaningful through a sense of care.

5 Discussion

The question that this study aimed to explore, and address was: how do individuals use the IVR experience to create meaning in the context of meaningful escapism? As a response to the prompted question, this paper began by discussing the notions of 'reality', 'immersive virtual reality' and the IVR experience, along with what escapism is and means for the human being. Then, a phenomenological inquiry was undertaken to explore, unveil, and characterize how the IVR experience becomes a meaningful escapism. Consequently, data from an empirical case study was incorporated to contextualize and illustrate the IVR experience as a meaningful escapism. As a result, four characteristics of

meaningfulness, along with their features of escapism, were unveiled to help addressing the research question. Hence, so far, I have provided an insight into how the IVR experience can become a meaningful escapism. In this section, however, I advance the paper, by first discussing a nuanced perspective of the IVR experience as a meaningful escapism. Then, implications of phenomenology for IS research are discussed. Finally, the contributions of this study, together with their implications for the IS field, are discussed.

5.1 A Nuanced Perspective of the IVR Experience as a Meaningful Escapism

This study proposed that the IVR experience becomes a meaningful escapism when the virtual worlds we escape to, has the ability to provide end-users of IVR a sense of content, sense of familiarity, sense of mood, and a sense of care. As such, all four characteristics are proposed to unveil how the IVR experience can be characterized as a meaningful escapism. However, I think that there is a need for further discussing the distinction between ‘meaning’ and ‘meaningfulness’, in order to clarify how the characteristics are proposed to contribute to a nuanced perspective of the IVR experience as a meaningful escapism.

First, as some of the excerpts from the empirical case illustrated, there seems to be a difference between an IVR experience that is ‘filled with meaning’ and an IVR experience that ‘feels meaningful’. For instance, an IVR experience can per definition be filled with networks of meanings (e.g., signs, images, language, affordances) that provide the end-users with a sense of familiarity and thus make the IVR experience intelligible for them. This point was confirmed via illustrations from the empirical case where end-users could navigate and orient themselves in order to extinguish onboard trains that they recognized, whereas prior research on IVR and safety training (e.g., Buttussi & Chittaro, 2017; Leder et al., 2019; Pedram et al., 2020) demonstrate how end-users must be provided with guidance through a sense of content. However, I argue that the latter seems to confuse meaningfulness with ‘filled with meaning’, because, as Heidegger (1962) and Van Manen (2017) point out, an experience can be filled with meaning even if it does not matter to a human being; e.g., an IVR experience can be filled with signs, avatars, fire, furniture, and other virtual objects that make sense to me for the situation I am encountering, but if it does not fit my lifeworld (e.g., concern me in any way), why should I even care about it? If we only understand ‘meaningfulness’ as filled with meaning, then we are per facto limiting our understanding to a Cartesian dualism that advocates representationalism of a reality that is filled with meaning (Ciborra & Willcocks, 2006). Hence, the IVR experience is already filled with meaning as long as we can relate to it, but it becomes a meaningful experience first when we start to care for it as important to us against the background of mood (Freeman & Elpidorou, 2015).

Second, the mood which we bring with us into the IVR experience, affects our sense of care for the experience. As illustrated by some of the interviewees from the empirical case, mood brings expectations and fears for how we enact meaning. For instance, on the one hand, we can enter the IVR space with an angst and frustration that makes our enactment feel less meaningful, or we can enter the same space with thrilling expectations. One could also flip the argument and say that the angst and frustration we feel in the physical world, becomes an incentive for escaping the physical world (Hazzard, 2016), in order to explore meaningful experiences in the virtual one. For instance, as Maloney & Freeman (2020) demonstrated, lonely people find it meaningful to fall asleep together with strangers in a virtual reality. This implies that the IVR experience has the power of offering end-users a tempting way of, not only incorporating mood into the IVR experience they enter (e.g., they bring their feeling of being lonely with them into the virtual world), but also to escape from the elements of mood (e.g., angst and frustration) that are situated within the physical world (e.g., they attempt to escape their loneliness). The end-user of IVR is thus enacting on what is meaningful or not depending on his/her mood, but also the mood that the IVR experience provides (e.g., the end-user feels less lonely in the virtual world). As such, one interpretation might be that experience in the virtual world can affect the participant’s mood, that their mood might affect their experience, meaning that the experience mirrors the physical world. An alternative interpretation might be that there is a need for future IS research to study the dynamics of interaction in VR in relation to mood, in order to understand how mood affected IVR experiences differ from those in the physical world.

However, without a sense of familiarity with the IVR experience, the meaningfulness of the experience would have remained latent, as would have been the case for the participants of the IVR fire safety training. As some of the interviewees commented, subtle misalignment in the behavior of virtual entities (e.g., the direction of fire hose) changed the atmosphere of the overall IVR experience. The atmosphere went from being modestly serious, to becoming very funny, although the participants of the training

exercise were continuing to accomplish their objectives sufficiently. As such, there seems to be a 'forgiving' element that is inherently embedded in the mood of IVR experiences, which urges end-users to experiment without risking feeling embarrassed or ashamed for their performances (Dincelli & Yayla, 2022; Sagnier et al., 2021). In other words, moods of an IVR experience might be an incentive for escaping the physical world, regardless of their representations in the physical world (e.g., the misalignment between a physical and virtual fire hose). However, it is in situations where misalignment between worlds occur that end-users of IVR might find themselves in a 'breakdown situation' (Lanamäki et al., 2015). The breakdown, which creates divergence of experience in the virtual world from what, which is known in the physical world, provides problems but also opportunities; the situation might be ignored, adjusted for, changed, and/or passed further to another situation. The question is though, in which world does the breakdown situation become meaningful for the end-user?

Despite Heidegger (1962) himself did not use the term 'breakdown' in his own writings, the term is associated with situations when ongoing, non-reflective practice, is interrupted (Dreyfus, 1991; Koschmann et al., 1998). According to Dreyfus (2002), a breakdown does not always refer to a permanent breakdown (also known as 'obstructive breakdown'), but also to temporary breakdowns (also known as 'obstinate breakdown') such as when a part of the IVR experience starts malfunctioning. A permanent breakdown situation would for instance cause end-users to lose their sense of familiarity with the IVR experience because it no longer makes any sense to them. Or if the IVR technology stops working completely, their attempt to escape reality would become a failure, and the IVR experience would present itself to them as a present-at-hand, static object (Riemer & Johnson, 2014). An obstinate breakdown, however, might instead stimulate end-users' sense of care (Freeman & Elpidorou, 2015), which future studies about VR in IS can focus (e.g., through descriptions from end-users, digital actions in VR) to understand the different kind of breakdowns. On the one hand, an obstinate breakdown might provide possibilities for end-users to explore the boundaries of an IVR experience in terms of how it matters to them, their practice, and/or imagination of reality by stimulating questions that are otherwise concealed (e.g., why do we associate the direction of a fire hose with its purpose and functionality?). On the other hand, an obstinate breakdown might also lead end-users to reconsideration about how the IVR experience becomes a meaningless escapism; if their sense of 'being-there' in the virtual world feels less worth than 'being-here' in the physical world (Evans, 2001). As such, for any end-user (new or old) to consider how the breakdown becomes meaningful for IVR experience, the breakdown needs to be aligned with a sense of care among the end-users in terms of how it matters to their lifeworld, and how the fleeting feeling of escapism stimulates a 'being-in-the-virtual-world'.

5.2 Implications of Phenomenology for IVR Research in the IS Field

'Being-in-the-virtual-world' is, I argue, an alternative of Dasein ('being-in-the-world') (Dreyfus, 1991) that conceptualizes the 'situatedness' of Dasein in the virtual reality as the embodied immersive experience that does not fully carry our bodily experiences from the physical world, to the virtual one (e.g., my physical body versus my virtual body). The fleeting feeling of escaping the world, does not only imply that we have somewhere to escape to with our senses (Siricharoen, 2019), but it also makes it possible for us to manifest our feelings, perception, and thought in the situatedness of our virtual embodiment. As such, we become 'thrown into' the virtual world of IVR, a world that is immersive, lucrative due to the embodiment of feeling present and active, as well as having the ability to supplement constraints of what it means to be in the physical world (Hartl & Berger, 2017); 'what it means to be' is here referring to Heidegger's notion of Dasein and the modes of being (e.g., ready-to-hand, present-at-hand). In other words, how does the modes of being affect our comportment differently in the virtual world as opposed to the physical one, and how does our different ways of being between the two worlds affect ways of being in general? In what ways would our 'ordinary' Dasein become influenced by the Virtual Dasein if we spent more time in the virtual world over time (as for instance VR-users do in 'sleepers world' where they sleep and wake up in the virtual reality)?

The common view of Dasein that has inspired IS researchers to adopt a Heideggerian approach to phenomenology (e.g., Inrona, 1997; Riemer & Johnston, 2017; Winograd & Flores, 1987), has focused on the relationship between information technologies and people that are situated within the physical world alone. The notion that we are always situated in the context of a practice with technologies (Ciborra & Willcocks, 2006), relies on Heidegger's (1962) original idea of being-in-the-world as something that signifies the ontology of 'being'. But when we become thrown into the virtual world that is immersive, we forget about what it means to be in the physical world (Jacobs, 2019). Instead, our sense of care becomes directed towards what it means to be in the virtual world. Here, I propose the term 'Virtual Dasein' as a

way of illustrating the extended feeling of being-in-the-virtual-world, and suggest a number of implications of doing phenomenological studies about IVR in IS.

For instance, by applying the idea of ‘Virtual Dasein’ to IVR research in IS, we as IS researchers might be able to address the emerging relationship between the body, the virtual, and the physical space, also known as ‘co-extensive spaces’ of IVR (Saker & Frith, 2020). Nonetheless, a notion of virtual Dasein would challenge the common dualism scholars impose when they distinguish between ‘the real’, ‘the actual’ (or ‘concrete’), and ‘the virtual’, in a virtual reality where the ‘real’ is no longer limited to something tangible (Saker & Frith, 2019); e.g., the physical fire hose (‘the real’), the fire hose that is most actualized/relevant for me here and now (‘the actual’), and the virtual fire hose or an imaginary one that is based upon my imagination (‘the virtual’). In a similar vein, it would be incorrect to suggest that an understanding of the virtual reality solely relates to the virtual, which is commonly implied within different studies about IVR and escapism in IS (e.g., Harit & Berger, 2017; Siricharoen, 2019), when referring to the IVR experience as the feeling of ‘being-there’.

The feeling of ‘being-there’, which also is the literal translation of the German term Dasein (Dreyfus, 1991), is associated with the cerebral form of being-in-the-virtual-world as in being engaged with the world and our familiarity of it (Heidegger, 1962). This phenomenological effect is, arguably, rooted in the sensorial configuration of the IVR technology, which provides an enclosed visual field for the user; headphones that cancel out the sound of the outside world, haptic devices that can provide sensory feedback loops of touch, pain, heat or cold (Evans, 2001). As such, a concept of ‘Virtual Dasein’ can provide IS scholars a nuanced understanding of presence and immersion as an experience that facilitates a simulated transgression of place through a meaningful escapism.

Another implication focuses the discussion between whether or not the IVR experience extends the physical world or if it urges us to escape it (Yengin, 2017). Especially with the emerging possibilities of using wireless or mobile IVR technology (Saker & Frith, 2019), conceptualizations of the IVR experience can no longer detach the experience from the physical world because the physical body is not thrown into the virtual world. To be clear, only in a mode of dualism would be able to say that we either extend or escape the physical world, whereas in reality, we have possibilities of doing both due to the coextensive space of IVR (Saker & Frith, 2020).

To account for a warranted shift from Cartesian dualism (Ref) to a phenomenological approach that is useful for understanding the changing relationship between the physical, virtual, and concrete reality enacted by current IVR technology, I suggest that the idea of ‘Virtual Dasein’ would help us IS scholars prompt new kind of thought-provoking questions that critically re-examine the IVR experience as a meaningful escapism. Especially, questions that advance the current IS discourse on IVR and escapism (Han et al., 2022; Harit & Berger, 2017; Siricharoen, 2019; Yengin, 2017). Examples of such questions could be: What do we escape with (the body? the senses? the mood?), when we attempt to escape the physical world and become Virtual Dasein? When we become Virtual Dasein, does that mean that we are trapped into the virtual reality? If so, how can we then escape the virtual reality in a meaningful way?

5.3 Contributions to the IS Field and Implications for IS Research

IVR technology is an immersive technology that has become more and more urgent to study in the field of IS (Wohlgenannt et al., 2020), and the research on how it as a technology becomes meaningful for people, organizations, and society, is still nascent (Dincelli & Ayala, 2022). This study contributes to the IS field and has implications for IS research in exploring and characterizing of how the IVR experience becomes meaningful for end-users of IVR technology. Similar to other studies in IS that have focused the IVR experience as a means for escapism (Han et al., 2022; Harit & Berger, 2017; Siricharoen, 2019; Yengin, 2017), this study elaborated on how escapism becomes meaningful for the end-users. More specifically, the four proposed characteristics of meaningfulness are accompanied with features of escapism that can be helpful for both IS researchers that study meaning and meaningfulness in the context of IVR technology, as well as practitioners engaging in, or considering engaging in, projects that focus how to design for meaningful IVR experiences. For example, by employing the four proposed characteristics, an IS scholar within the domain of design science might incorporate the characteristics as ‘justificatory knowledge’ (Gregor & Jones, 2007) or ‘kernel knowledge’ (Gregor & Hevner, 2013) that informs the design process and development of design principles that guide the builders of meaningful IVR systems – particularly if, through experimentation, evaluation, and sharing observations, the design principles can be refined iteratively across different contexts of application. Additionally, other IS scholars might employ the characteristics to formulate specific design elements (as opposed to general design

principles) for IVR spaces that are designed to facilitate meaningful IVR experiences in the context of, for instance, education and safety training (Çakiroğlu & Gökoğlu, 2019; Morélot et al., 2021). This would also contribute to previous calls made by IS scholars (e.g., Radianti et al., 2020) to advance research that produces design knowledge for IVR training applications. However, for any of these characteristics to become fully useful for IS researchers, the characteristics must be understood against their background, which in this case was, the lack of knowledge on how IVR experiences become meaningful. Future research should thus explore situations where a discussion on meaning and meaningfulness is relevant, and which increase our understanding of additional characteristics that might be important to acknowledge for a meaningful IVR experience.

On a broader level of contribution to the IS field, the four characteristics of meaningfulness proposed by this study, help IS researchers to clarify the conceptual distinction and relation between 'meaning' and 'meaningfulness'. This is arguably especially valuable for the ongoing IS research on IVR technology that aims to conceptualize/theorize the IVR experience in different contexts of practice, education, and design (Cavusoglu et al., 2019; Dincelli & Ayala, 2022; Mütterlein, 2018; Parvinen et al., 2018; Radianti et al., 2020; Steffen et al., 2019). In this study, I illustrated how a clarification of 'meaning' and 'meaningfulness' can serve as conceptually helpful when characterizing the IVR experience as a meaningful escapism. However, other IS scholars can draw from this study's insights on 'meaning' and 'meaningfulness' to other contexts of IS research, whether it is within the context of IVR research or not, the definitions and clarifications that are provided in this study can serve future IS research guidance.

Another implication of this study for IS research, has to do with the insights on how IVR technology has the strong ability to urge and promote escapism (Hartl & Berger, 2017; Konzack, 2018). Escapism is not always a good thing for end-users' well-being because the extremities might make them delusional and passive towards important duties of the physical world (Hazzard, 2016; Yengin, 2017), or develop an unhealthy addiction to the rush of exploring other worlds and slowly forgetting about the 'real' one (Kim, 2015). Although the fleeting feeling of escapism in IVR is tempting and meaningful for end-users that find themselves developing new skills under safe circumstances (Radhakrishnan et al., 2021) or develop their sense of compassion for strangers (Jacobs, 2019), there is always a risk of becoming trapped in the virtual reality and then wanting to escape it. If virtual reality becomes a part of people's everyday lived experiences, more and more people might prefer to spend a majority of their time in the virtual worlds and thus reinforce a Virtual Dasein.

The idea of a life lived online (being-in-the-virtual-world), or outside of regular society, is largely seen as dangerous and unhealthy (Siricharoen, 2019) As Evans (2001, 2018) points out, when escapism goes too far, it has negative effects on the essential fabric of living. Hence, there is an ethical dimension connected to how this study proposes the IVR experience as a meaningful escapism, which does not ignore the power IVR technology has for inspiring end-users to withdraw physically from society. Especially with the rapid emergence of Facebook Metaverse (Han et al., 2022), future IS research needs to take possible risks of escapism into considerations when designing and developing IVR systems. Additionally, IS researchers can elaborate the proposed characteristics of this study from an ethical perspective, to conduct IVR studies where escapism might be meaningful for contexts such as the consumer market (Lavoie & King, 2019; Violante et al., 2019), health and safety implications for end-users of IVR (Nichols & Patel, 2002), and/or for re-examining the constitutive elements of an IVR experience such as immersion and presence (Hartl & Berger, 2017; Hudson et al., 2019). Finally, this study contributes methodologically to the IS field by demonstrating the viability of phenomenology and how it can be used (either purely or in a modified way as this study showcases) to explore how end-users of IVR experience meaning and meaningfulness in the virtual world – e.g., using phenomenology to inform the design of method for data collection and analysis, to conceptualize meaning and meaningfulness, and to elaborate Heidegger's concepts of Dasein, mood, care, and more.

6 Conclusion

In this paper, I explored how the IVR experience becomes a meaningful escapism by characterizing the experience and proposing four characteristics: 'sense of content', 'sense of familiarity', 'sense of mood', and 'sense of content'. The characteristics were unveiled through a phenomenological inquiry that combined Heidegger's phenomenological thinking, together with a phenomenological approach to data collection and analysis. Existing views on IVR experience, how it distinguishes itself from other technology-mediated experiences that are not immersive, and how it becomes meaningful, are either diversified or sometimes implicit and vaguely expressed for the IS audience. Building on a

phenomenological inquiry, this study clarified the distinctions between 'meaning' and 'meaningfulness', how it is related to notions of reality, world, and escapism. The conclusions that the study draws are that

- In the physical world, which is often referred to as the 'real world', human beings are Dasein (being-in-the-world), concerned with what matters to their lifeworld as being meaningful for their lived experiences and everyday life
- In the virtual reality, however, end-users have the potential to become Virtual Dasein (being-in-the-virtual-world) as an extension of what it means to be in world. Here, the fleeting feeling of escapism becomes a meaningful way of exploring other worlds that are beyond the seemingly mundane or demanding one.

The conclusions imply that the IVR experience is not only entertaining or fun, but it has implications for how we experience, create, and share meaning in and across different 'worlds'. As such, traditional notions of what is 'real', 'tangible', and/or 'fiction', are challenged in the expanding coextensive space of IVR, where the boundaries between the physical world and a projected imaginary one, is becoming more and more blurring, yet meaningful

As with every study, this work also has limitations. For instance, I employed Heidegger's phenomenological notions to characterize the IVR experience as a meaningful escapism. I thus acknowledge that Heidegger's phenomenology and overall thinking is complex, and that the complexity of his concepts is greater than how I have portrayed them in this paper. However, understanding, and explicating Heidegger's thinking in detail, would require a purely philosophical study, something which might be foreign to an IS audience that is more interested about IVR research.

Moreover, the empirical illustrations of this study were limited to a specific context of IVR fire safety training, whereas future research would benefit from evaluating how the proposed characteristics in this study, help conceptualize meaningful IVR experiences that are situated in other IVR contexts than safety training.

I do, however, believe this study informs IS scholars essential information about meaning, meaningfulness, world, reality, and how the IVR experience urges escapism as something meaningful for end-users of IVR technology. Finally, I hope that this study stimulates IS scholars to reflect upon our taken-for-granted notions of 'reality', 'world', and meaningfulness, by studying the IVR experience further and thinking about what kind of reality they want to contribute to through their research: a reality of which we want to be a part of, or a reality which we want to escape from?

Acknowledgments

The author of this study would like to acknowledge and thank the Swedish train company, SJ, for allowing this study to incorporate data from observations, material (e.g., pictures of IVR technology, IVR training software), and interviews with employees of the company.

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About the Authors

Amir Haj-Bolouri. Amir is Associate Professor of Information Systems at University West in Sweden and at Jyväskylä University in Finland. Amir's research interests range from Design Science Research to philosophy, phenomenology, Virtual Reality, and meaningful learning. Amir has published research papers in journals such as *European Journal of Information Systems*, *Scandinavian Journal of Information Systems*, *Journal of Workplace Learning*, as well as conferences such as *European Conference of Information Systems*, *Hawaii International Conference on System Sciences*, *International Conference on Design Science Research in Information Systems and Technology*. Amir is an active member of the Association of Information Systems, IEEE, and the current president of Association of Information Systems Special Interest Group on Pragmatist Information Systems Research.

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