

PROLONGING THE INFLUENCE OF A VACATION EXPERIENCE ON CONSUMERS' WELLBEING... IS THERE A ROLE FOR VIRTUAL REALITY?

1.0 INTRODUCTION

An important motivational driver for a vacation experience is to escape the stress and strains of routine day-to-day life (Su et al, 2020). Individuals increasingly partake in vacations with the aim of enhancing their wellbeing (Wang et al., 2021; Yu et al., 2020; Filep and Laing, 2019; Cai et al., 2020). Recently, scholars have drawn on the lens of *positive psychology* to understand how tourism experiences contribute to individuals' wellbeing (e.g. Zins and Ponocny, 2022; Vada et al., 2020; Mackenzie and Brymer, 2020; Filep and Laing, 2019; Lengieza et al., 2019; Garces et al., 2018). However, despite this growing body of literature, it remains unclear how tourists' wellbeing adapts over the duration of a vacation (Su et al., 2020). More specifically, we have a limited understanding on the lasting wellbeing effects post-vacation (Li and Chan, 2020) and the potential of technology to prolong positive wellbeing effects.

While vacations have been heralded as positively influencing consumer wellbeing, scholars have outlined that the positive outcomes of a vacation often have a limited lasting effect of up to one month (Bastiaansen et al., 2019; Filep & Laing, 2019; Mitas et al., 2012; Etzion, 2003; de Bloom et al., 2011). Chen et al. (2013) found that tourists' hedonic wellbeing was boosted immediately following a vacation but quickly faded after two months. Similarly, McCabe and Johnson (2013) outlined that wellbeing boosted by vacations is short lived as individuals return to face their daily life challenges. In further support, Kwon and Lee (2020) outlined that individuals wellbeing rose 15 days prior to travel and lasted for one month following travel. Thus, through the lens of set-point theory, while previous research has established that vacations can positively influence an individual's wellbeing the lasting effect appears limited.

Accordingly, given the advancements in technology and the inherent social presence and immersion of Virtual Reality (VR hereafter), we aim to understand if a related VR tourism experience post-vacation can play a role in prolonging the wellbeing effects of an individual's vacation experience. In effect, a vacation transports one's self to an alternative world, physically. Similarly, VR transports one's self to an alternative world, virtually. Thus, in both circumstances individuals leave behind their day-to-day life in pursuit of an alternative way of life for a short duration (Fan et al., 2022). VR technology has the unique capability to make individuals feel like they have transported to and become 'present' within an alternative virtual world (McLean and Barhorst, 2021). Accordingly, parallels can be drawn between the transportation to an immersive virtual world and the transportation to a physical tourism destination. VR therefore has the propensity to transport and immerse consumers back into a familiar vacation experience.

Additionally, while wellbeing in positive psychology has been operationalised as encompassing both hedonic and eudaimonic dimensions (Vada et al., 2020), the focus of most research has been on hedonic wellbeing pertaining to individuals' pleasure and happiness (Zins and Ponocny, 2022). In turn, the eudaimonic dimension has been largely understudied. Thus through the lens of positive psychology this research aims to first confirm the effects of a vacation experience on both the hedonic and eudaimonic

dimensions of wellbeing over the course of a vacation. Second, investigate the potential role of VR in prolonging the positive effects of vacation experiences on individuals' wellbeing.

The following section first discusses the literature on positive psychology and the potential role of virtual reality in enhancing wellbeing through the lens of presence theory. Next, we discuss our methodological approach which consisted of a field-based experiment and a lab based experiment. Accordingly, we present our findings before moving on to the theoretical and practical implications of our research. We conclude with future research avenues.

2.0 LITERATURE REVIEW

2.1 Positive Psychology and Wellbeing

In recent years, tourism researchers have affirmed a link between tourism experiences and positive psychology outcomes. For example, Wang et al (2021) found that people have greater optimal functioning following a vacation, while Filep and Laing (2019) outline that people are often happier on vacation and shortly following a vacation. Additionally, previous research has also found that the mere anticipation of an upcoming vacation can spur feelings of happiness and positively increase wellbeing in comparison to those with no upcoming vacation (McCabe and Johnson, 2013).

Seligman and Csikszentmihalyi (2000) introduced positive psychology as a study of human flourishing, excellence, happiness, and optimal human-functioning. Wellbeing in positive psychology has been operationalised as hedonic wellbeing (i.e. when pleasure is obtained and pain is avoided: pleasure and happiness) and eudaimonic wellbeing (i.e. having purpose in one's life: optimal functioning and personal growth). Most recent research has often viewed tourism as a pleasure seeking activity in which tourists embark on vacations for the purpose of hedonic emotional experiences (Wang et al., 2021) based on 'subjective wellbeing theory' (Sirgy, 2019). However, wellbeing in positive psychology takes a broader and more comprehensive view of wellbeing beyond the specific focus on happiness (i.e. the hedonic perspective) as individuals are not just seeking out experiences in search of 'pleasure' (Zins and Ponocny, 2022) but to gain meaning and personal growth (i.e. the eudaimonic perspective) (Rahmani et al., 2018). Eudaimonia has been outlined as a state in which an individual has a greater level of autonomy, mastery over their environment, positive relationships with others, personal growth, purpose in life and general self-acceptance (Ryff, 2014).

To underpin our understanding of the eudaimonic dimension of tourists wellbeing, researchers (e.g. Su et al., 2020; Chen et al., 2016; Sirgy, 2019) have recently drawn on the lenses of self-determination theory (Ryan and Deci, 2000), top-down theory (Diener, 1984) and goal theory (Emmons, 1986). Self-determination theory (Ryan and Deci, 2000) concerns individual's inherent growth tendencies and innate psychological needs and is concerned with the motivation behind individuals' choices without external influence or interference. Top-down theory (Diener, 1984) suggests that each individual has a general propensity for experiencing events and circumstances in a positive or negative way. For example, individuals' wellbeing may be increased if they select goals related to growth needs. Goal theory (Emmons, 1986) posits that the pursuit of meaningful goals can have a positive effect on individuals' wellbeing. For example, Sirgy et al (2017) found that goal achievement of

deprived needs is more likely to induce strong positive wellbeing feelings than goal attainment of non-deprived needs. Thus, the challenge and adventure associated with a vacation can have an important influence on tourists' wellbeing.

Tourists wellbeing is often associated with relaxation, pleasure and happiness in a hedonic perspective (Rahmani et al., 2018). For example, this may include experiencing a nice hotel, a scenic environment, or good food (Su et al., 2020). In an eudaimonic perspective, tourist wellbeing is associated with accomplishing a tourism related activity, finding a like-minded friend, or achieving a tourism related personal growth goal (e.g. visit the Egyptian Pyramids). As such, tourism experiences can be simultaneously eudaimonic and hedonic (Lengieza et al., 2019). On the other hand, Henderson and Knight (2012) argue that there are some tourist experiences may be more eudaimonic (e.g. visiting a war memorial) and more hedonic (e.g. spending time at a beach) in nature. Despite this line of thought, visiting a war memorial may influence both dimensions of wellbeing (i.e. eudaimonic and hedonic) for some individuals but only one dimension for others (i.e. eudaimonic). Consequently, it is important that researchers simultaneously measure and distinguish between hedonic and eudaimonic dimensions of wellbeing (Vada et al., 2019; Lengieza et al., 2019), moving away from a narrow single perspective.

2.2 Change in wellbeing over the duration of a vacation

The change in individuals' wellbeing over the duration of a vacation has been a core concern of a rich body of literature in tourism research (see: Vada et al., 2020; Filep and Laing, 2019) and stems from Hoopes and Lounsbury (1986) initial research on tourist life satisfaction pre and post vacation. Further research highlights that the positive effects on tourists wellbeing peaks during their trip (Bastiaansen et al., 2019; Filep & Laing, 2019; Mitas et al., 2012). Thus, from a hedonic point of view this would be a tourist's peak of happiness, while from an eudaimonic perspective the peak of growth, autonomy and challenge. However, more specifically, a body of literature suggests a rise tendency of wellbeing from pre-trip to on-trip where individuals leave their home and go to a tourist destination, and a fall-tendency of wellbeing from on-trip to post trip, following individuals' leaving the tourist destination and returning home to their daily lives and usual routines (Nawijn et al., 2010; Chen et al., 2013; De Bloom et al., 2010). According to set-point theory (Lykken and Tellegen, 1996), only major life events (e.g. birth of a child, unemployment) can cause longer term changes in set-points (wellbeing) whereas other events (e.g. vacations) appear to only induce temporary fluctuations in wellbeing. While major life events have a longer term influence on wellbeing, as individuals adapt their life to their new situation, wellbeing returns to the same baseline situation (Anusic et al., 2015). Thus, set-point theory helps explain the suggested change in wellbeing over the duration of a vacation.

Accordingly, prior research (Filep & Laing, 2019) surmise that both hedonic and eudemonic wellbeing will peak on-trip. As such, tourist wellbeing will likely ascend from pre-trip to on-trip and will enter a 'drop-down process', descending towards the end of the on-trip stage to post-trip (Su et al., 2020). However, the descend of wellbeing is a gradual drop-down process rather than immediate. Previous research estimate that a vacation has a one to two month lasting effect on individuals' wellbeing (Kwon and Lee, 2020; de Bloom et al., 2010; Chen et al., 2013; McCabe and Johnson, 2013). However, while previous research has identified wellbeing peaks on trip, with exception to Su et al. (2020), these studies have

focused only on the hedonic perspective of wellbeing. Accordingly, we move beyond this narrow view and thus assess wellbeing from both a hedonic and eudaimonic perspective. We further differentiate from previous research through undertaking a real-world field experiment rather than a lab-based scenario experiment. As such, drawing on the discussion above and on set-point theory, we hypothesise (see table 1 to find definitions for baseline, pre-vacation, post-vacation1, post-vacation2 and post-vacation3):

H1a. Over the course of a vacation, eudaimonic wellbeing increases from baseline situation, pre-vacation, post-vacation1 but decreases at post-vacation2 and returns to baseline situation at post-vacation3.

H1b. Over the course of a vacation, hedonic wellbeing increases from baseline situation, pre-vacation, post-vacation1 but decreases at post-vacation2 and returns to baseline situation at post-vacation3.

2.3 Virtual Reality

VR has been singled out as one of the most important technology developments in tourism pertaining to its ability to immerse individuals in a destination (Alyahya and McLean, 2021; Bogicevic et al., 2019). A VR environment is a digital space where an individual's movements and actions are tracked, and surroundings digitally composed and displayed to the individual to arouse their senses in line with their actions or movements (Fox et al., 2009). Accordingly a VR environment immerses individuals in an alternate digital world enabling them to block out information from the physical real-world (Bogicevic et al. 2019). VR provides individuals with a sense of presence which makes them feel like "actually being there" in an alternate (computer-mediated) environment (Ijsselsteijn and Riva 2003). Hence, individuals feel like they have transferred from the physical world to being immersed in an alternative virtual world (Wei et al., 2019).

The travel and tourism sector has developed a slow but steady growth in the use of VR as an alternative to physical travelling (Beck et al., 2019). The application of VR in tourism as a substitute to physical travelling received some early attention from academics (e.g., Williams and Hobson, 1995; Guttentag, 2010; Huang et al., 2016), though the focus of tourism-related VR research and application in practice has been largely on the use of VR as a preview to a destination, attraction or hotel to either market or sell services (Zeng et al., 2020).

Through the lens of *Presence Theory*, which pertains the psychological feeling of being 'physically' present in a non-physical space, VR has the capability to transport an individual to an alternative world (virtually). Given that a vacation is transporting an individual to an alternative world (physically), in effect omitting their usual life activities, clear parallels can be drawn between the transportation and presence in a physical vacation with the 'transportation' and 'sense of presence' in VR (McLean and Barhorst, 2021). Previous research has found that VR can help individuals feeling isolated in confined environments to reduce stress and enhance their mood (Anderson et al., 2017) and has been used as a distraction tool to reduce patients' stress in the medical field (Mohammad and Ahmad, 2019).

Accordingly, given the ability of VR to 'transport' individuals and immerse them with the feeling of being present in a tourist experience (Fan et al., 2022), VR technology could offer a mechanism for boosting individual's wellbeing prior and post vacation. Research has demonstrated that 'gifts' from someone when they are not present or in the context of tourism 'souvenirs' when no longer on vacation can have a positive boosting effect on wellbeing as it creates the psychological feeling of 'being there when not being there' (Wiener et al., 2022). While other technology and stimuli such as videos, photos, bought memorabilia, and general memorable tourism experiences may be capable of boosting wellbeing (Vada et al., 2019), none of these can provide an immersive experience like VR with the capability to 'transport' individuals, in effect, back into their vacation experience. As such, given the commentary on the waning effect of a vacation experience on individuals' wellbeing (see: Su et al., 2020; Kwon and Lee, 2020; de Bloom et al., 2010; Chen et al., 2013; McCabe and Johnson, 2013) we hypothesise that based on presence theory a related immersive VR vacation experience reflecting an individuals' real-world vacation experience will boost an individual's wellbeing during the drop-down process.

H2a An immersive VR experience related to an individual's vacation will boost eudaimonic wellbeing at post-vacation 3

H2b An immersive VR experience related to an individual's vacation will boost hedonic wellbeing at post-vacation 3

2.4 Vacation type on tourists' wellbeing

While vacations are associated with positively influencing wellbeing, the type of vacation can influence wellbeing differently (Lengieza et al., 2019). Scholars have attempted to categorise vacation types in multiple different ways. Hall and Weiler (1992) categorise tourism activity as special interest tourism (SIT) and general interest tourism (GIT). SIT is driven by an individual's desire to further develop a specific interest (i.e. learn about a different culture), while GIT is aligned with relaxation within familiar comforts.

Other researchers distinguish vacation types by different types of tourism pursuits (i.e. nature activities, cultural activities, sporting activities, or culinary activities). Meanwhile, Bhattacharjee and Mogilner (2014) suggest two types of vacation experiences exist, namely, ordinary and extraordinary. Such categories can be distinguished by the frequency in which they are undertaken and the emotions they produce (Duerden et al., 2018). As such, extraordinary experiences are linked with accomplishment and challenge. However, Mehmetoglu (2007) distinguish vacations in two categories, namely, challenging and relaxing. Challenging vacations can require specialist skills or effort (Rokenes et al., 2015), while relaxing vacations require little to no effort. The physical effort that can be required in challenging (adventure) vacations often involve increased risk but yield substantial positive emotional reactions (Su et al., 2020; Beckman et al., 2017).

While other variables have the potential to impact tourists wellbeing, including, length of stay, travel distance, accommodation type and season. The vacation type has been outlined as the most influential factor that can alter an individual's wellbeing over the course of a vacation (De Bloom et al., 2011). As previously alluded to, different vacation types may

influence the dimensions (hedonic and eudaimonic) of wellbeing in different ways (Smith and Diekmann, 2017). As such, eudaimonic wellbeing is often connected to vacations that involve activities of challenge or physical effort, whereas hedonic wellbeing tends to be related to activities of relaxation and minimal effort (Su et al., 2020).

Accordingly, following the works of Mehmetoglu (2007) and more recently Su et al. (2020), we categorise vacations into two types; Relaxing and Challenging. A relaxing vacation is characterised by limited effort, limited challenge, limited risk such as sightseeing or sunbathing. On the other hand, a challenging vacation is characterised by high effort, high challenge, high risk, ranging from visiting a theme park to mountain climbing. As such, we propose that the type of vacation (relaxation vs. challenge) will play a moderating role between the influence of a vacation and tourists' wellbeing. Additionally, in relation to the aforementioned vacation type association with eudaimonic and hedonic wellbeing, we propose that the related VR tourism experience will have a greater influence on hedonic wellbeing in a relaxing vacation type and a greater influence on eudaimonic wellbeing in a challenging vacation type. Thus we hypothesise:

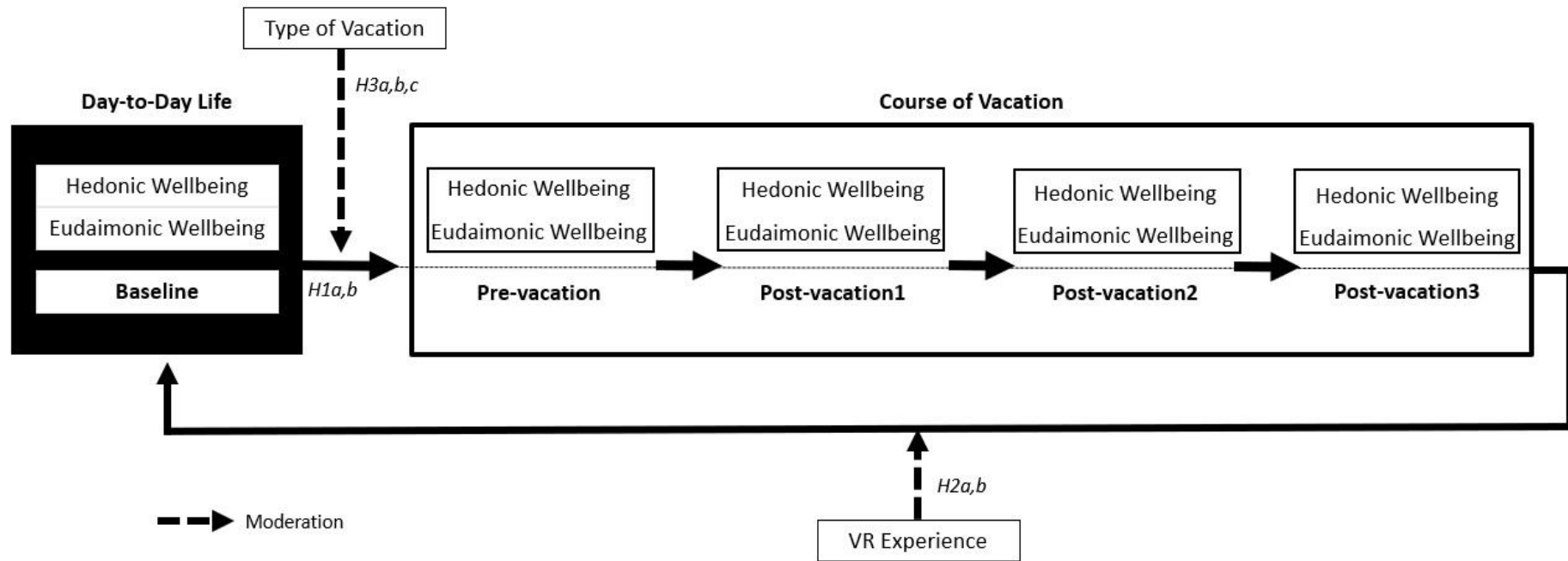
H3a Over the course of a vacation, the vacation effect on eudaimonic wellbeing and hedonic wellbeing is significantly moderated by the type of vacation.

H3b A VR experience in a relaxing vacation type will boost hedonic wellbeing greater than in an adventure vacation type at post-vacation 3.

H3c A VR experience in an adventure vacation type will boost eudaimonic wellbeing greater than in a relaxing vacation type at post-vacation 3.

Figure 1 provides a combined pictorial overview of the research hypotheses. The following sections discuss the two study approach to test the hypothesised relationships.

Figure 1: Theoretical Model



(see table 1 to find definitions for baseline, pre-vacation, post-vacation1, post-vacation2 and post-vacation3)

3.0 METHODOLOGY

To answer the research hypotheses, 2 studies were conducted. Building upon Su et al. (2020) lab-based experiment, study 1 involved a longitudinal research design through distributing a questionnaire at four different time points (pre-vacation, post-vacation₁, post-vacation₂ and post-vacation₃; see table 1). Study 1 was utilised to test *H1a,b*. Study 2 involved a lab based experiment to assess the role of VR in prolonging the wellbeing effects of a vacation and the role of the vacation type as a moderator. Accordingly study 2 assessed *H2a,b* and *H3a,b,c*. A recent systematic literature review (Vada et al., 2020) outlined the need for longitudinal and experimental methodological approaches to truly understand the effects of vacations on consumer wellbeing. This research helps to fill this void.

3.1 Study 1

Prior to conducting our main studies we successfully pilot tested our questionnaires. In study 1, we employed a longitudinal design (over a 3 month period) with five measurement points through the distribution of an online questionnaire. Data were captured from February 2022 in the UK. Participants in the research were recruited by a market research agency and via a research assistant. Accordingly, quota sampling was used. Quota sampling is a non-probability sampling technique and was used as it enables the research to seek a sample of individuals who meet the specific criteria for the research. The participants were told that the research would have five phases. To take part in the research, participants in the treatment group had to be scheduled to go on vacation and be within four weeks of departure. Participants had to be going on one of the following vacations (1) a trip to Disney World, Florida or (2) a relaxing beach vacation. Such vacations types allowed for the categorisation of vacation type in the assessment of hypotheses *H3a,b,c* in study 2. Participants in the control group were not scheduled to go on vacation for at least the coming three months. In total, we recruited 462 participants. 241 participants were in the treatment group (vacation-taking group) and 221 in the control group (non-vacation-taking group). At the end of the entire collection of data participants were given a certificate of participation and entered into a prize draw.

In the first online questionnaire participants reported their hedonic and eudaimonic wellbeing at the baseline position (four weeks before departure). A prior study (Kwon and Lee, 2020) found that individuals' wellbeing can start to increase 15 days prior to a vacation, thus to establish participants' base-line wellbeing we surveyed participants 4 weeks prior to vacation. During our first data collection point we collected participants demographic details. Of the 362 participants, 57% were female and 43% male; aged between 18-58 years old $M_{age} = 31$ years old. 68% of participants go on vacation once per year, 26% go on vacation multiple times per year, while 6% vacation at least once every two years. The questionnaire only took 3 minutes for participants to complete. Accordingly, we collected the pre-vacation data 1 week before departure, the post-vacation₁ data 1 week following the return from vacation, the post-vacation₂ data 4 weeks following the return from vacation and the post-vacation₃ data 8 weeks following the return from vacation.

Table 1 Data Collection Points and Weeks

Collection Point	<i>n</i> Weeks
Baseline	4 weeks prior to vacation
Pre-Vacation	1 week prior to vacation
Post Vacation 1	1 week post vacation
Post Vacation 2	4 weeks post vacation
Post Vacation 3	8 weeks post vacation

3.2 Measures

Thereafter, we measured eudaimonic wellbeing based on Su et al. (2020) measurement which was developed from Lengieza et al. (2019), Gao et al. (2018) and Ryff & Keyes' (1995) measurement. Additionally, we also utilised Su et al. (2020) measurement of hedonic wellbeing which was derived from Lengieza et al (2019), Sue et al. (2016) and Diener et al. (1985). Additionally, in line with Gilbert and Abdullah (2004) at each collection point participants were asked to indicate if they had experienced any significant life events that could cause them to feel exceptionally happy, unhappy or both. Major life events referred to a marriage, job promotion, birth of a baby, death of a family member or friend, job loss, separation, and divorce. Table 2 provides details of all the scales and their corresponding items used in both study 1 and study 2. As such, the tables present the source of the scales and the associated Cronbach's alpha coefficient in the assessment of the scale's reliability, composite reliability and average variance extracted.

Table 2: Measurement Scales Study 1 & Study 2

Variable	Scale Reference	Adapted Scale	CA	CR	AVE
Hedonic Wellbeing	Adapted from: Su et al. (2020) (Originally developed from: Lengieza et al. (2019), Gao et al. (2018) and Ryff & Keyes' (1995)	<ul style="list-style-type: none"> • Compared to my peers, I consider myself happier • I am generally very happy and enjoy life • In general, I consider myself very happy • In most ways my life is close to my ideal • I am satisfied with my life 	.803	.827	.631
Eudaimonic Wellbeing	Adapted from: Su et al. (2020) (Originally developed from: Lengieza et al (2019), Sue et al. (2016) and Diener et al. (1985)	<ul style="list-style-type: none"> • I feel I am in charge of the situation in which I live • I have a feeling of continued development, I think I am growing • I like most aspects of my personality • I have a warm, satisfying, and trusting relationship with others • I have a sense of purpose in my life 	.791	.802	.664
Sense of Presence	Adapted from: Tussyadiah et al. (2018); Kim et al. (2019)	<ul style="list-style-type: none"> • I felt like I was actually there in the VR (video) environment. • It seemed as though I actually took part in the action of the VR (video). • It was as though my true location has shifted into the VR (video) environment. • I felt as though I was physically present in the VR (video) environment. 	.811	.764	.713

(CA = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted)

3.3 Study 1 Data Analysis

To test *H1a* and *b*, paired samples t-tests were conducted in SPSS. Hedonic wellbeing and eudaimonic wellbeing were compared to the baseline situation at pre-vacation, post-vacation¹, post-vacation², post-vacation³. The results unveiled significant positive effects at pre-vacation, post¹, post², but no significant difference at post³ with regard to hedonic wellbeing in the vacation-taking group (treatment group) but no significant differences in the control group between any of the five collection points for either hedonic or eudaimonic wellbeing.

Specifically in the vacation-taking-group, hedonic wellbeing at the pre-vacation stage (Hed-pre: $m = 5.37$, $SD = .66$), post¹Vacation stage (Hedpost¹: $m = 5.85$, $SD = .76$), post²Vacation stage (Hedpost²: $m = 5.43$, $SD = .74$) were significantly higher than the baseline stage (HedBase: $m = 4.87$, $SD = .71$; $t_{Base\ vs\ pre-vacation} = -.7.21$, $p < .01$; $t_{Base\ vs\ post1-vacation} = -.8.01$, $p < .01$; $t_{Base\ vs\ post2-vacation} = -.7.19$, $p < .01$) but not significant at the post³ stage, post³Vacation stage (Hedpost³: $m = 5.02$, $SD = .81$; $t_{Base\ vs\ post1-vacation} = -.1.78$, $p = .103$). The results further detailed significant positive effects at pre-vacation, post¹, post², and post³ with regard to eudaimonic wellbeing.

Specifically in the vacation-taking-group, eudaimonic wellbeing at the pre-vacation stage (Eud-pre: $m = 5.51$, $SD = .71$), post¹Vacation stage (Eudpost¹: $m = 5.65$, $SD = .68$), post²Vacation stage (Eudpost²: $m = 5.59$, $SD = .72$), post³Vacation stage (Eudpost³: $m = 5.47$, $SD = .77$) were significantly higher than the baseline stage (EudBase: $m = 4.78$, $SD = .75$; $t_{Base\ vs\ pre-vacation} = -.4.27$, $p < .01$; $t_{Base\ vs\ post1-vacation} = -.5.11$, $p < .01$; $t_{Base\ vs\ post2-vacation} = -.4.39$, $p < .01$; $t_{Base\ vs\ post3-vacation} = -.3.46$, $p < .01$). Thus, we find that a vacation can have a longer lasting effect on eudaimonic wellbeing in comparison to hedonic wellbeing.

Therefore, we have support for *H1a*, however, with regard to *H1b* we hypothesised that by the post³vacation stage that eudaimonic wellbeing would return to the baseline situation, the results reject this and demonstrate that eudaimonic wellbeing at post³vacation is significantly greater than the baseline.

Chart 1: Change in wellbeing over the course of a vacation

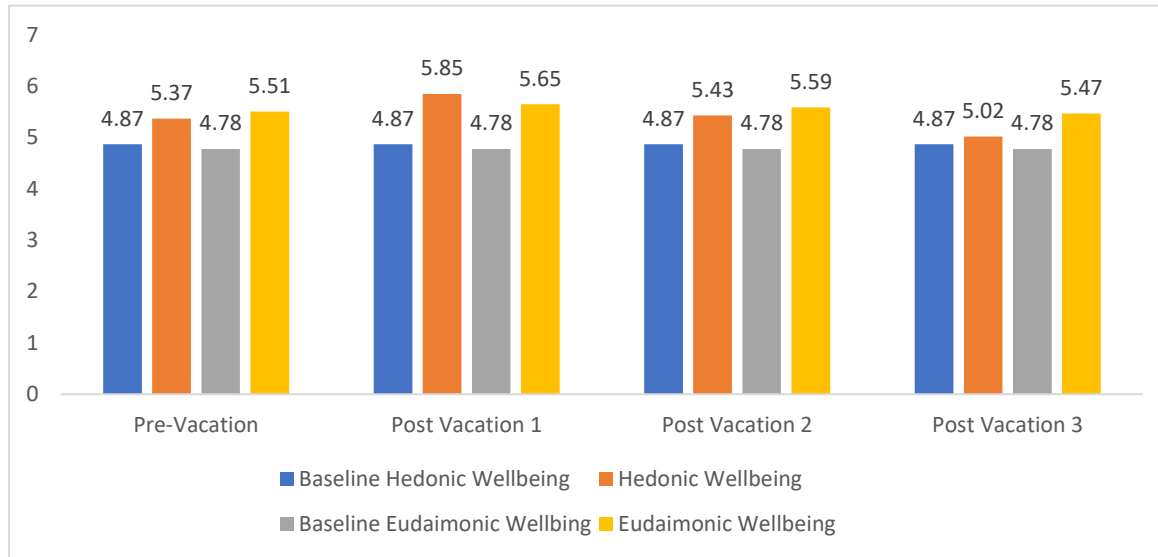
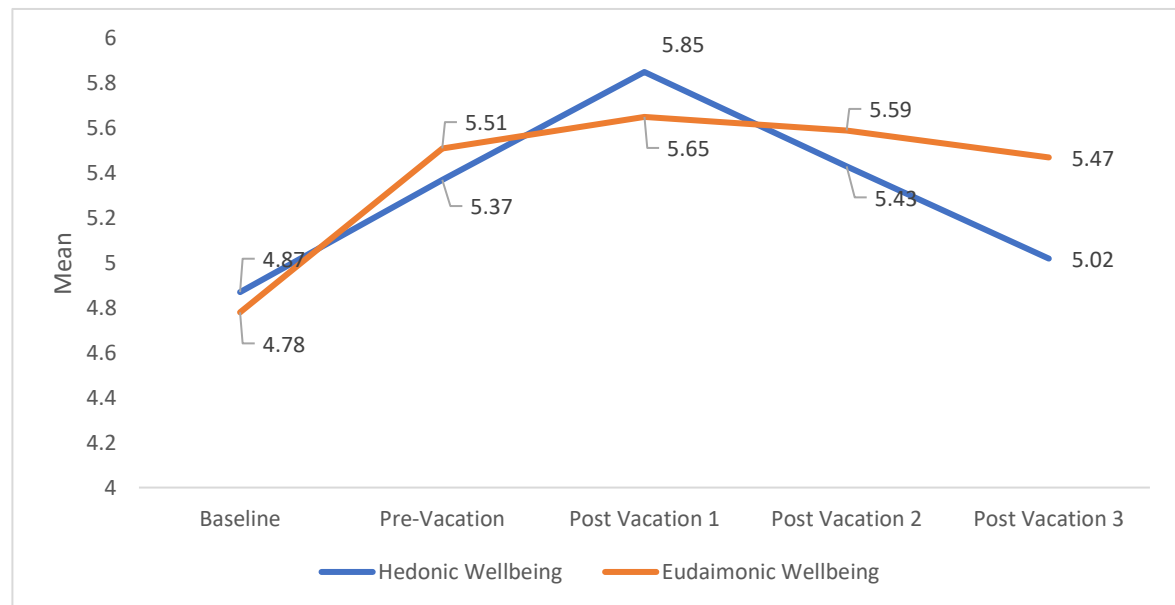


Chart 2: Changes in wellbeing between vacation stages



3.4 Study 2

Study 2 involved a lab based experiment to assess the role of a related VR experience in prolonging the wellbeing effects of a vacation and the role of the vacation type as a moderator. Utilising the same set of participants as study 1, participants taking part in the research had been on vacation to either (1) Disney World, Florida or (2) a relaxing beach vacation. As such, this enabled us to categorise participants into a relaxing vacation or challenging vacation type and to provide a related VR experience to test *H2a, b* and *H3a, b* and *c*.

We assessed the role of a related VR experience in boosting hedonic and eudaimonic wellbeing at the post-vacation 3 stage (8 weeks following the return from vacation). The literature outlined that following one month from returning from a vacation, individuals wellbeing can start to decline. Our findings in study 1 affirmed this. In total we had 241 participants in study 2. 121 participants took part in the VR experience and 120 in no-VR experience. For those participants who vacationed at Disney World, Florida participants were provided with an immersive VR experience of the Magic Kingdom theme park ($n = 58$). All participants had physically visited the magic kingdom theme park. Alternatively, participants who embarked on a relaxing beach vacation were provided with an immersive VR experience encompassing walking around a beach and promenade surrounded by sunshine ($n = 63$).

The VR experience took place within a lab. A research assistant administered the welcome for participants, provided the appropriate VR experience, instructions on how to use the Oculus Quest 2 device and provided the short questionnaire on hedonic and eudaimonic wellbeing following the experience. Each VR experience lasted a total of 8 minutes. A further sub control group was used in the lab experiment to compare against the VR experience. Following the completion of the questionnaire by the non-VR experience group, the respondents then completed a second questionnaire on their wellbeing following a video related to participants' vacation (i.e. video of a Disney World theme park or a video of people relaxing on the beach and a promenade).

3.5 Study 2 Data Analysis

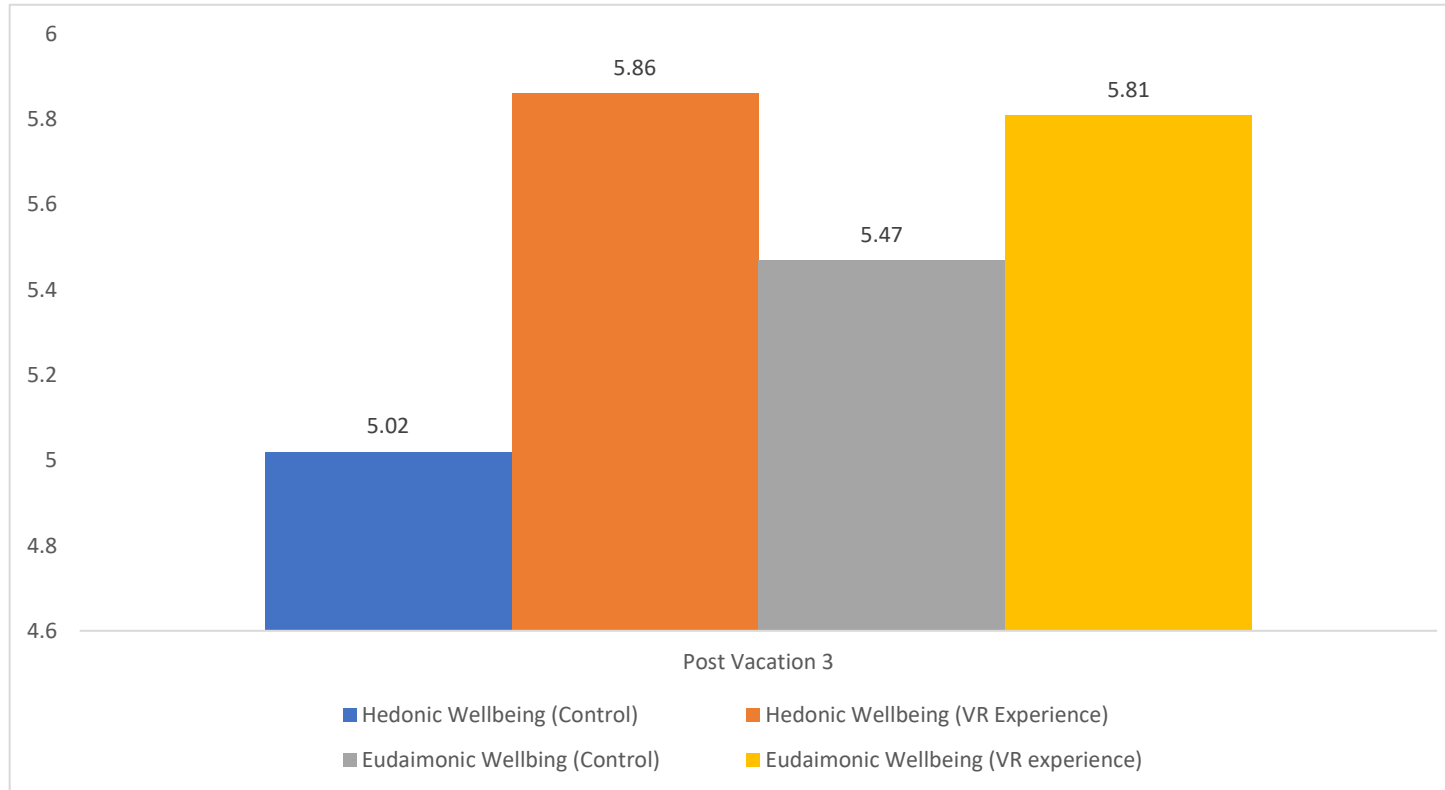
In assessment of *H2a* and *b*, of the 241 participants who were in the vacation taking group half were split into a *VR experience group* (treatment group) and half into the *no VR experience group* (control group). The results indicate support for *H2a* as the VR experience had a positive effect on boosting participants eudaimonic wellbeing (VRGroup Eudpost³ : $m = 5.81$, $SD = .61$; ControlGroup Eudpost³ : $m = 5.47$, $SD = .77$; $t_{VRgroup\ vs\ control-group} = 3.21$ $p < .05$). Similarly, in support of *H2b*, a significant positive effect was found with regard to the influence of a VR experience on hedonic wellbeing (VRGroup Hed³ : $m = 5.86$, $SD = .66$; ControlGroup Hed³ : $m = 5.02$, $SD = .81$; $t_{VRgroup\ vs\ control-group} = 3.89$ $p < .01$). Thus we find that VR can play a role in boosting both eudiamonic and hedonic wellbeing.

The results indicate that while VR has a significant effect on both forms of wellbeing, the technology has a greater effect in boosting hedonic wellbeing at the post vacation 3 stage (8 weeks following return from vacation). Additionally, we then presented the control group with a related video of their vacation (i.e. video of the Magic Kingdom Disney World theme park or a video of people relaxing on the beach and a promenade) to assess this against the

VR experience. The results indicated that the video had no significant effect on both Hedonic and Eudiamonic wellbeing (ControlGroup Eudpost³ : $m = 5.47$, $SD = .77$; ControlVideoGroup Eudpost³ : $m = 5.49$, $SD = .72$; $t_{\text{Control-group vs video-control-group}} = 1.17$ $p = .210$; ControlGroup Hed³ : $m = 5.02$, $SD = .81$; ControlVideoGroup Hed³ : $m = 5.14$, $SD = .71$; $t_{\text{Control-group vs Video-control-group}} = 1.13$ $p = .126$). Accordingly, this outlines the difference in the effects of a VR experience in positively boosting wellbeing in comparison to a related video experience which has no significant effect.

Thus, the heightened sense of presence in being transported from the real world to becoming immersed in a virtual world delineates the role of VR vs a video. To understand participants perception of the sense of presence in the VR experience and the Video experience we conducted a manipulation check using the sense of presence scale detailed in table 2. The results indicated higher levels of sense of presence in the VR experience (VR: $m = 6.01$, $SD = .44$; Video: $m = 4.66$, $SD = .64$).

Chart 3: The effects of a related VR experience at Post Vacation 3



Prior to the assessment of *H3a, b* and *c*, to ensure our categorisation of a relaxing vs challenging vacation was accurate we compared the results of 56 participants who were not part of the main study. The respondents were provided with a description of either a relaxing or challenging vacation type assessed in the research (e.g. a trip to Disney World, Florida or a beach vacation), accordingly on a 7 point Likert scale participants answered two questions: Please rate how relaxing the described vacation would be to you? And Please rate how challenging the described vacation would be to you? To assess we calculated two independent-sample t-tests, the results indicate that the Group_{relaxing} (beach vacation) rated a significantly higher mean value score regarding the question, 'Please rate how relaxing the described vacation would be to you?' ($M_{\text{Group}_{\text{relaxing}}} = 6.20$, $M_{\text{Group}_{\text{challenging}}} = 3.14$, $t = 9.01$, $p < .001$), while the Group_{relaxing} also recorded a significantly lower mean value to the question, 'Please rate how challenging the described vacation would be to you?' ($M_{\text{Group}_{\text{relaxing}}} = 3.24$, $M_{\text{Group}_{\text{challenging}}} = 6.18$, $t = -8.43$, $p < .001$). Thus, the participants were able to distinguish between the vacation types affirming the validity of our categorisation.

Moreover, in assessment of *H3a*, we analysed the moderating role of the vacation type. We conducted independent samples t-tests to assess for any differences in hedonic wellbeing and eudaimonic wellbeing across the vacation type (relaxing vs challenging). In line with Su et al., (2020) and Gilbert & Abdullah (2004), the vacation type effect was calculated as the mean subtraction of the individual's hedonic and eudaimonic wellbeing between the different stages and the baseline state.

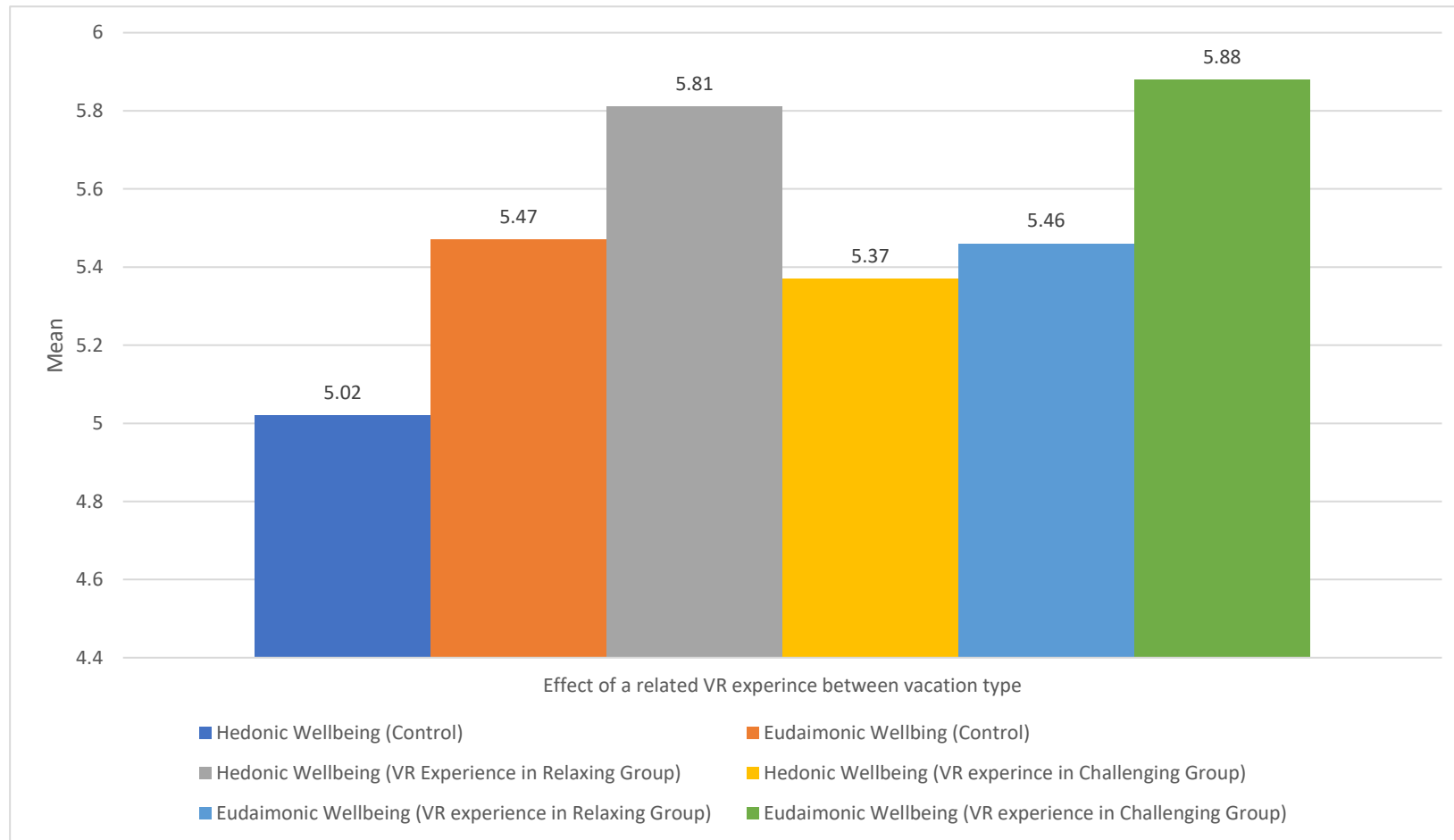
The results outlined a significant difference in eudaimonic wellbeing at the Post¹Vacation stage, Post²Vacation stage and Post³Vacation stage between the relaxing group and the challenging group ($\text{EdGroup}_{\text{relaxing}} (\text{Post}^1\text{Vacation} - \text{Base}) = 0.68$ vs. $\text{EdGroup}_{\text{challenging}} (\text{Post}^1\text{Vacation} - \text{Base}) = 1.12$ $p < .05$; $\text{EdGroup}_{\text{relaxing}} (\text{Post}^2\text{Vacation} - \text{Base}) = 0.64$ vs. $\text{EdGroup}_{\text{challenging}} (\text{Post}^2\text{Vacation} - \text{Base}) = 1.18$ $p < .05$; $\text{EdGroup}_{\text{relaxing}} (\text{Post}^3\text{Vacation} - \text{Base}) = 0.59$ vs. $\text{EdGroup}_{\text{challenging}} (\text{Post}^3\text{Vacation} - \text{Base}) = 1.09$ $p < .05$. Accordingly, in comparison to the baseline measurement, the level of eudaimonia in the challenging vacation situation resulted in greater eudaimonic wellbeing. However, no significant differences were found at the Pre-vacation stage with regard to eudaimonic wellbeing between the vacation types ($\text{EdGroup}_{\text{relaxing}} (\text{pre-vacation} - \text{Base}) = 0.59$ vs. $\text{EdGroup}_{\text{challenging}} (\text{pre-vacation} - \text{Base}) = 0.68$ $p > .05$).

Furthermore, the results detailed a significant difference in hedonic wellbeing at the Post¹Vacation stage between the relaxing group and the challenging group ($\text{HedGroup}_{\text{relaxing}} (\text{Post}^1\text{Vacation} - \text{Base}) = 1.22$ vs. $\text{HedGroup}_{\text{challenging}} (\text{Post}^1\text{Vacation} - \text{Base}) = 0.63$ $p < .05$). Thus, a relaxing vacation has a greater influence on individuals' hedonic wellbeing following the initial return from vacation. However, no other significant differences were found at any other stage with regard to hedonic wellbeing between the vacation types ($\text{HedGroup}_{\text{relaxing}} (\text{Post}^2\text{Vacation} - \text{Base}) = 0.89$ vs. $\text{HedGroup}_{\text{challenging}} (\text{Post}^2\text{Vacation} - \text{Base}) = 0.66$ $p > .05$; $\text{HedGroup}_{\text{relaxing}} (\text{Post}^3\text{Vacation} - \text{Base}) = 0.71$ vs. $\text{HedGroup}_{\text{challenging}} (\text{Post}^3\text{Vacation} - \text{Base}) = 0.59$ $p > .05$; $\text{HedGroup}_{\text{relaxing}} (\text{PreVacation} - \text{Base}) = 0.64$ vs. $\text{HedGroup}_{\text{challenging}} (\text{PreVacation} - \text{Base}) = 0.69$ $p > .05$).

Lastly, in assessment of *H3b* and *c*, we analysed the influence of a related VR experience at the post vacation 3 stage on eudaimonic and hedonic wellbeing across vacation types

(Relaxing vs. Challenging). The sample of 121 participants taking part in the VR experience were split into vacation groups (Relaxing vacation group $n = 63$; Challenging vacation group $n = 58$). Thereafter, we conducted independent samples *t*-tests. The results indicate that participants' hedonic wellbeing within the relaxing group is significantly influenced by the VR experience in comparison to participants' hedonic wellbeing in the challenging group (HedGroup_{relaxing} Post³Vacation ($m = 5.81$, $SD = .68$) vs. HedGroup_{challenging} Post³Vacation ($m = 5.37$, $SD = .73$) $t = 3.21$ $p < .05$). Thus, we have support for *H3b*. Additionally, we find support for *H3c* (EudGroup_{challenging} Post³Vacation ($m = 5.88$, $SD = .79$) vs. EudGroup_{relaxing} Post³Vacation ($m = 5.46$, $SD = .79$) $t = 3.54$ $p < .05$). In turn, VR can play a role in enhancing hedonic wellbeing following a relaxing vacation and eudiamonic wellbeing following a challenging vacation.

Chart 4: The effects of a related VR experience across vacation type (Relaxing vs. Challenging)



The subsequent sections will discuss the theoretical and practical implications of the results from study 1 and 2.

4.0 DISCUSSION AND CONCLUSIONS

Previous research outlined that a key motivational driver for a vacation is to escape the stress and strains of everyday life and in turn to enhance wellbeing (Wang et al., 2021). However, wellbeing boosted by vacations is often considered to be short lived as individuals return to face their daily life challenges.

Despite wellbeing consisting of two key dimensions, hedonic and eudaimonic wellbeing, the role of eudaimonic wellbeing has been understudied and therefore has resulted in some inaccurate conclusions regarding the effects of wellbeing. Similarly, how wellbeing can change over the course of a vacation (e.g. pre-vacation (1 week prior to vacation), post-vacation 1 (1 week following a vacation), post-vacation 2 (4 weeks following a vacation), post-vacation 3 (8 weeks following a vacation) time-points) has received limited attention (Su et al., 2020). Likewise, the use of technology in the form of virtual reality has been outlined as a useful tool for destination previews, but the technology has not been assessed as a tool for boosting wellbeing through a related VR tourism experience. Accordingly, through the lens of positive psychology, this research affirms the positive effect of a vacation experience on both the hedonic and eudaimonic dimensions of wellbeing. The differences in wellbeing over the course of a vacation. The moderating influence of the type of vacation (e.g. Relaxing vs. Challenging). The role of VR in boosting the positive wellbeing effects of a vacation.

4.1 Theoretical Contribution

This research enriches our knowledge on the dimensions of wellbeing and builds on the growing set of literature understanding the role of both hedonic and eudaimonic wellbeing (Su et al., 2020; Vada et al., 2020; Mackenzie and Brymer, 2020; Filep and Laing, 2019; Lengieza et al., 2019; Garcés et al., 2018). Notably, we move beyond lab-based scenario experiments and answer calls for research to conduct a longitudinal field-based experiment to understanding the effects of a vacation on both hedonic and eudaimonic wellbeing. Prior lab-based research (e.g. Su et al., 2020), enabled this research to move into the field to further assess the results in the real-world environment. The results further support prior research that a vacation can have a positive influence on one's life happiness and one's purpose in life. Accordingly, we provide further support for the inclusion of both dimensions of wellbeing to provide a true holistic understanding of consumer wellbeing. Prior research omitting the eudaimonic perspective of wellbeing dilutes and over simplifies our true understanding of the implications of a vacation experience on wellbeing.

In further support of moving beyond the theoretical framework of 'subjective wellbeing' which neglects eudaimonic wellbeing leading to a less comprehensive understanding of the phenomenon. Encompassing the assessment of both hedonic and eudaimonic dimensions of wellbeing is essential due to the differences identified across the vacation duration (i.e. baseline, 1 week prior to vacation, 1 week post-vacation, 4 weeks post-vacation, 8 weeks post-vacation). In relation to hedonic wellbeing the results demonstrated that a vacation had a significant positive effect at the pre-vacation, 1 week post, 4 weeks post stages, but

no significant effect at 8 weeks post in comparison to no significant differences in the control group between any of the five collection points. However, in relation to eudaimonic wellbeing, a vacation had a significant positive effect at the pre-vacation, 1 week post, 4 week post, and 8 week post stages.

Previous literature suggests that a fall-tendency of wellbeing will commence upon return from vacation (Filep & Laing, 2019). While decline is noted, entering a 'drop-down process' from 1 week post-vacation to 8 week post-vacation, the drop down at 4 weeks post-vacation and 8 weeks post-vacation was greater for hedonic wellbeing than it was for eudaimonic wellbeing. This may be due to pleasure seeking (hedonic wellbeing) offering instant gratifications whereas based on Goal theory (Emmons, 1986), life goal attainment or personal development (eudaimonic wellbeing) provide long lasting gratification. Thus, a vacation can have a longer lasting effect on eudaimonic wellbeing. Accordingly, taking a narrow viewpoint on wellbeing (focusing solely on hedonic wellbeing) may have skewed our understanding on the lasting effects of a vacation on tourists' wellbeing.

Technological advancements in VR has enabled tourism providers to fully immerse consumers in a destination through viewing the destination via a VR headset (Beck et al., 2019; McLean and Barhorst, 2021). Prior research outlines that VR immerses individuals in an alternate digital world enabling them to block out information from the physical real-world (Bogicevic et al. 2019). Accordingly, VR provides individuals with a sense of presence which makes them feel like 'actually being there' in an alternate (computer-mediated) environment. Parallels can be drawn between the transportation and presence in a physical vacation with the 'transportation' and 'sense of presence' in VR.

Accordingly, as this research affirms that individuals' wellbeing enters a gradual 'drop-down process' descending post trip (notably, such a drop-down differs in speed between hedonic and eudaimonic wellbeing with the former descending with greater pace), this research outlines that a related VR experience provides a mechanism to boost individuals' hedonic and eudiamonic wellbeing during the 'drop-down process' post-vacation. Building upon previous research (Kwon and Lee, 2020; Su et al., 2020), this research found that between one month and two months following a vacation both hedonic and eudiamonic wellbeing falls. However, while individuals' enter the 'drop-down process', a related VR experience can transport individuals and make them feel 'present' in their vacation experience. This research found that a VR experience at 8 weeks post vacation has a positive effect on enhancing wellbeing, while a greater effect was found on hedonic wellbeing a significant effect was also found on eudiamonic wellbeing.

While other media such as images and videos can stimulate memories of a vacation, VR differentiates from this due to its ability to transport and immerse individuals with a sense of presence in an interactive real-life experience. Comparably, this research found that a related video experience had no positive boosting effect on ones' wellbeing. In turn, we advance our understanding on the role of VR technology in prolonging the positive wellbeing effects on both hedonic and eudiamonic wellbeing post vacation.

While vacations can positively influence wellbeing, the type of vacation can effect wellbeing differently. Moving beyond scenario based work, this research affirmed such a moderating role in a field-based experiment. Drawing from the literature (Mehmetoglu, 2007; Su et al., 2020), we categorised vacations into two types; Relaxing and Challenging. A relaxing

vacation was characterised by limited effort, limited challenge, limited risk such as sightseeing or sunbathing. Conversely, a challenging vacation was characterised by high effort, high challenge, high risk, ranging from visiting a theme park to mountain climbing. The results affirmed that the level of eudaimonia in the challenging vacation situation resulted in greater eudaimonic wellbeing 1 week post vacation, 4 weeks post vacation and 8 weeks post vacation in comparison to the relaxing group. Therefore, to boost eudaimonic wellbeing individuals' should seek more challenging oriented vacations, in turn this will enhance their 'sense of purpose' and 'continued development'.

Furthermore, while a significant difference in greater hedonic wellbeing one week following a relaxing vacation was found in comparison to a challenging vacation, no further differences were found 4 weeks or 8 weeks following the vacation or prior to the vacation. Accordingly, a relaxing vacation that encompasses limited effort or challenge may have a greater influence on hedonic wellbeing one week following a vacation, though this greater wellbeing effect is short lived and enters the 'drop-down process' at the same gradual pace as hedonic wellbeing in a challenging vacation. Furthering our understanding on the role of VR in boosting wellbeing, the results established that VR can enhance hedonic wellbeing following a relaxing vacation and eudaimonic wellbeing following a challenging vacation. Thus, VR has a boosting effect on wellbeing, prolonging the positive effect across vacation types. Notably, the greatest effect size is found in boosting hedonic wellbeing in the relaxing vacation which previously saw hedonic wellbeing falling to the same level as a challenging vacation after one week. In turn, VR's ability to convey a sense of presence to transport individuals and immerse them in their previously taken vacation plays an important role in prolonging positive wellbeing effects across vacation types.

4.2 Practical Implications

This research offers numerous practical implications for tourism providers, tourism boards (policymakers) and consumers. The results establish the importance of a vacation in influencing both hedonic and eudaimonic wellbeing. For example, to have a longer lasting effect on wellbeing, individuals should consider tourism vacations associated with personal development, a sense of purpose and meaning in life, rather than just pleasure, this in turn positively influences eudaimonic wellbeing over the lifetime of the vacation (pre, during, post).

The results of this research indicate that a vacation can positively influence both hedonic and eudaimonic wellbeing 1 week prior to vacation and 4 weeks post vacation in comparison to a baseline wellbeing situation. As a result, tourism providers and policymakers should market the psychological wellbeing benefits of a vacation over the course of a vacation's lifetime. Importantly, this research finds that tourism providers should not only draw on the hedonic 'pleasure' benefits of a vacation but also the benefits associated with personal development and meaning in life. These eudaimonic wellbeing benefits, which have often been overlooked in academic research, have a slower 'drop-down process' and in turn longer lasting effect on psychological wellbeing. Given that previous research has outlined that boosting one's wellbeing is a key motivational driver of a vacation, tourism providers must communicate such hedonic and eudaimonic wellbeing benefits to consumers. Tourism marketers could develop specific strategies (i.e. hedonic and/or eudaimonic) for different audiences. As such advertisements showcasing relevant hedonic or eudaimonic images may attract potential customers. Previous work has outlined

the positive effects of wellbeing on behavioural intentions to visit a destination, therefore drawing on the hedonic and eudaimonic wellbeing factors may stimulate consumers intentions to visit a destination.

Relatedly, to enhance eudaimonic wellbeing, tourism providers and policymakers have an opportunity to facilitate situations for consumers to interact, bond, show off their strengths and build relationships with like-minded individuals. Such activities could take place prior to the vacation, during the vacation and post vacation. Future research could establish if such on-going interactions post vacation could stimulate positive wellbeing.

In addition, the findings indicate that the vacation type (i.e. challenging vs. relaxing) has a moderating influence on individual's wellbeing. For example, the results detail that for greater (long term) eudaimonic wellbeing, a challenging vacation type will provide greater wellbeing benefit. Thus, tourism providers should establish the wellbeing benefits consumers are seeking from their vacation and offer vacation packages accordingly. For example a consumer who wants to develop self-growth, develop relationships with others, and have a sense of purpose should be offered a challenging vacation type (e.g. skydiving, theme park, mountain climbing etc). Such data to appropriately offer relevant packages could be captured in-store during a consultation with a service advisor or through an automated registration process on a website.

Moreover, this research found an important role for VR in boosting individuals' hedonic and eudaimonic wellbeing. The results of this research and previous lab-based research (e.g. Su et al., 2020) illustrates that individuals enter a gradual 'drop-down process' from 1 week to 8 weeks following a vacation. However, the results show that the introduction of a related VR experience at 8 weeks can boost both hedonic and eudaimonic wellbeing to the same level as 1 week post vacation and above that of pre-vacation wellbeing. This offers tourism providers and tourism boards opportunities to enhance consumer wellbeing via VR technology. Tourism providers could offer consumers a VR experience related to their vacation to virtually transport them to the destination they recently consumed. Previous research has outlined how VR previews of a destination positively influences intentions to visit and revisit (e.g. McLean and Barhorst, 2021), similarly the positive wellbeing effects derived from a vacation have also been shown to positively influence revisit intentions, word of mouth and loyalty towards a destination (Vada et al., 2019), consequently, boosting consumers wellbeing through a related VR tourism experience may result in individuals rebooking with the provider or revisiting the destination.

VR has mainly been used by tourism providers and tourism boards as a preview to a destination, attraction or hotel to either market or sell services. However, managers now have the opportunity to embed the technology as part of their service offering to enhance consumer wellbeing. Integrating VR experiences as a routine part of the service following a vacation may in turn result in additional future bookings and continued engagement with the brand, aiding relationship development while consciously prolonging the positive wellbeing effects of a vacation. Managers may choose to offer such VR experiences free of charge with appropriate hardware such as the low-cost Google Cardboard VR device or introduce a fee to experience the vacation virtually drawing on the wellbeing benefits in communications messages to customers.

Lastly, given our findings outlined the differences in eudaimonic and hedonic wellbeing across vacation types, tourism providers ought to draw on eudaimonic factors in the sensory stimuli used within a VR experience for those who have embarked on a challenging vacation type and draw on hedonic factors for those who recently experienced embarked on a relaxing vacation type.

4.3 Limitations and Future Research

While this research has advanced our understanding of hedonic and eudaimonic wellbeing consequences resulting from vacations and the role of VR boosting wellbeing following a vacation, certain limitations of this research provide interesting avenues for future research.

Firstly, we were unable to measure participants wellbeing during their vacation. While we assessed participants wellbeing at 5 different measurement points across three months, being able to measure wellbeing on-trip would provide further understanding on the potential drop-down process following the vacation. Additionally, being able to measure wellbeing during the trip would also provide further indication on the level in which VR can replicate the wellbeing effects of a physical vacation. Future research should aim to measure wellbeing during trip and assess consumers' hedonic and eudaimonic wellbeing in comparison to the VR experience.

Secondly, given that varying types of VR exist (i.e. semi-immersive and fully-immersive), as this research focussed on fully-immersive VR, it would be interesting to see if the results hold for the more accessible semi-immersive VR (for definitions see: Beck et al., 2019). Relatedly, this research utilised the high-end fully-immersive Oculus Quest 2 VR head-set, however an array of other fully-immersive headsets exists including the low-end Google Cardboard device, mid-range Oculus Go and the high-end HTC Vive Pro which all offer slightly different experiences. Therefore, future research could compare the results across different types of VR devices to establish if the results are consistent across devices.

Thirdly, this research introduced a VR experience 8 weeks following a vacation. Future research should assess the introduction of a VR experience post-vacation at various different time-points to establish the effects across time. Relatedly, future research should assess the lasting effect of the wellbeing boost of VR, i.e. how quickly do individuals go through the drop-down process following the VR experience. Therefore, a further longitudinal study would help to further our understanding on the lasting effect of the VR experience.

Lastly, we outlined differences across vacation types. However, this was restricted to two different vacations. Future research should assess different types of relaxing vs challenging vacations to broaden our understanding.

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