The Journal of Mind and Behavior
Winter 2025, Volume 46, Number 1
Pages 252–278
ISSN 0271–0137

Virtual Reality Art to Create a Place of Relaxation

Shan Gao*, Korakot Jairak

Chiang Mai University, Thailand

This study examines the escalating issue of workplace anxiety in recent years, informed by my personal experiences. Additionally, traditional relaxation techniques based on guided imagery are frequently executed in a manner that diverges from the therapist's original description due to differences in individual interpretation, thereby compromising the efficacy of the relaxation process. These factors motivated the development of an intuitive and immersive creative project designed to lead audiences on a restorative journey. Following extensive research and analysis of contemporary learning trends, the conceptual framework for the creative work, titled "Rebirth", was formulated. This project employs virtual reality (VR) technology to facilitate relaxation among participants. The VR experience is structured around three interconnected scenes: Anxiety, Break Away, and Relaxation. Through these immersive environments, the audience is guided through a transition from inner turmoil to a state of tranquillity. The creative work "Rebirth" was showcased at the Pongnoi Community Art Space in Chiang Mai, Thailand, from 17 to 30 August 2024. Feedback collected through observations and audience interactions during the exhibition demonstrated that "Rebirth" effectively achieved its objective of fostering relaxation. Furthermore, this artwork encourages individuals to confront their anxieties, guiding them to address these emotions constructively rather than avoiding them or yielding to pressure and fear.

Keywords: Virtual Reality, Art, Workplace Anxiety, Place of Relaxation.

Introduction

In recent years, the term "anxiety" has increasingly permeated public discourse. According to data from the World Health Organization (Organization, 2022), nearly one billion individuals, including 14% of

Correspondence concerning this article should be addressed to Shan Gao Ph.D. student, Faculty of Fine Arts, Chiang Mai University, Chiang Mai, Thailand, 50200
E mail: m18271630098@163.com

adolescents globally, experience varying degrees of mental health disorders. Among these, anxiety disorders are the most prevalent, affecting approximately 301 million people worldwide, with the number of cases rising significantly each year. Furthermore, the rapid pace of economic development and intensifying competitive pressures have contributed to heightened workplace stress, leading to widespread sub-health issues. As reported by the EU Labour Force Survey between 1999 and 2007, nearly 28% of respondents identified "stress, depression, or anxiety" as the most severe work-related health problem among affected workers (Commission, 2010). This underscores the growing burden of anxiety and stress in contemporary society.

There also exists anxiety due to workplace pressures. At the time, when people entered the workforce, and as newcomers, the unfamiliar working environment and high-intensity workload resulted in a prolonged state of heightened nervous tension. It has been vividly recalled that confiding in friends with statements such as, "I haven't had proper sleep for several days" and "I feel my body is completely drained" . Concurrently, there was generated urticaria, suffering both physical and psychological distress as a result of the immune system dysfunction triggered by anxiety. Drawing from these experiences, there exists a recognition of the profound impact that workplace anxiety can have on an individual's physical and mental well-being (Source: Author). Consequently, identifying effective methods to relax and alleviate stress has become an urgent priority. For an extended period, one common relaxation technique has involved guiding individuals to use their imagination, and envisioning pleasant and calming scenes to achieve physical and psychological relaxation. However, due to variations in cognitive construction among individuals, the mental images conjured by users often deviate from those described by therapists, potentially diminishing the effectiveness of this approach.

The proposed solution to the aforementioned issues is "Rebirth", a virtual reality artwork developed. This creative project is designed to guide participants on a restorative journey, facilitating the alleviation of anxiety within this context. By utilising virtual reality technology, the audience is afforded the opportunity to navigate freely within the virtual space, enabling them to personally experience the transformative progression of internal emotional states. This journey encompasses an initial phase of anxiety, followed by breaking away from the predicament, and culminates in a state of relaxation. Through this immersive experience, the artwork seeks to provide a tangible and effective means of addressing anxiety and fostering emotional well-being.

Literature Review

Workplace Anxiety in Today's Society

Anxiety is an intricate and distressing emotional state characterised by tension, fear, dread, and unease, often triggered by the anticipation of a potential future danger or threat. In recent years, heightened social pressures have contributed to the emergence of anxiety within professional environments, leading to the conceptualisation of the term "workplace anxiety." According to Beehr (1995), workplace anxiety refers to the specific apprehension experienced within the context of one's professional field. Similarly, Zeidner (2005) define workplace anxiety as a fearful and stressful psychological state that employees encounter when confronted with particular work-related tasks. This phenomenon underscores the growing intersection between mental health and occupational challenges in contemporary society.

As a detrimental emotional state, workplace anxiety can manifest in symptoms such as palpitations, insomnia, and panic, all of which adversely affect an individual's psychosomatic well-being (Haslam et al., 2005). Extensive psychological literature has identified numerous factors that contribute to the onset of workplace anxiety. For instance, workplace anxiety often arises when individuals are subjected to performance-related pressures (Li et al., 2018). This occurs when individuals perceive that their professional goals or interests are under threat, prompting adverse emotional reactions. Anxiety functions as a self-signalling mechanism when an individual's sense of security or survival is jeopardised, frequently accompanied by a perceived threat (Huang et al., 2019). Additionally, workplace bullying has been identified as an exhausting and distressing experience (Sprigg et al., 2019). When individuals are repeatedly subjected to malicious, threatening, insulting, or exclusionary behaviours, they are likely to experience negative emotional states, including anxiety, anger, sadness, and insecurity. These findings highlight the multifaceted nature of workplace anxiety and its significant impact on mental health.

Workplace anxiety is a prevalent phenomenon in contemporary society. While excessive anxiety in professional settings can detrimentally affect individuals' lives and health, it is essential to communicate the notion that anxiety is not inherently negative (Source: Author). Instead, individuals should be encouraged to confront their emotions, learn to accept the presence of anxiety rather than attempting to evade it, and adopt a constructive mindset to explore effective strategies for stress reduction and anxiety management. By doing so, the impact of anxiety on individuals can be mitigated, fostering resilience and emotional well-being.

Psychological Relaxation to Improve the Situation

Relaxation has been characterised as a natural state of mental and physical release from tension or stress (Titlebaum, 1988). Tension, which refers to a rigid state of the body, can provoke emotional responses such as discomfort and even anxiety. In contemporary society, stress is a leading contributor to both mental and physical health issues. Effective relaxation techniques can play a crucial role in enhancing an individual's sense of tranquillity and alleviating anxiety, thereby promoting overall well-being. Relaxation training refers to the systematic practice of techniques designed to alleviate physical and mental tension, thereby facilitating a state of enhanced calmness or a reduction in levels of anxiety, stress, or anger. (Kim & Kim, 2018) conducted a systematic review and meta-analysis, which examined 16 studies involving 856 patients diagnosed with anxiety disorders—including generalised anxiety disorder, social anxiety disorder, and panic disorder—found that relaxation therapy significantly alleviated symptoms of anxiety, depression, phobias, and worry. The review highlighted that relaxation therapy demonstrated greater efficacy than cognitive behavioural therapy in reducing anxiety. Common methods employed in relaxation training include progressive muscle relaxation, deep breathing exercises, meditation, guided imagery, and music-based relaxation techniques.

Furthermore, Bratman et al. (2019), an Assistant Professor at the University of Washington, along with his research team, identified that engagement with natural environments can yield numerous psychological benefits. These include enhanced emotional well-being, more positive social interactions, and a heightened sense of meaning and purpose in life. Additionally, a large-scale survey involving 18,000 participants revealed that proximity to water bodies, such as oceans, rivers, and lakes, had a calming effect on individuals' moods (Gascon et al., 2017). These findings underscore the significant role of natural settings in promoting mental and emotional health.

The study on psychological relaxation demonstrates that various methods, such as relaxation training and contact with nature, can effectively alleviate pressure and anxiety. However, most traditional psychological relaxation techniques predominantly rely on guided imagery, the effectiveness of which can be influenced by the quality of an individual's imaginative capacity and the guide's ability to direct the process (Source: Author). Furthermore, in the context of a fast-paced lifestyle, it is often challenging for individuals to disengage from their demanding work schedules to immerse themselves in natural environments and experience moments of tranquillity. Consequently, identifying a convenient and feasible self-service approach to facilitate

psychological relaxation for the general public has emerged as a critical consideration.

The Impact of Sensory Experience on Emotions in Virtual Reality

VR refers to a computer-generated, three-dimensional (3D) simulated environment that allows users to engage and interact through specialised VR devices, such as goggles, headsets, and gloves (Lowood, 2025). Furthermore, VR has the capacity to induce a sense of presence, wherein users feel profoundly immersed in the virtual environment, creating the perception of physical being within it (Tussyadiah et al., 2018). This immersive experience fully activates the user's sensory faculties. Among the five fundamental human senses—touch, sight, hearing, smell, and taste—sight and hearing are particularly pivotal in shaping the VR experience. These senses play a critical role in enhancing the realism and immersion of the virtual environment, thereby contributing significantly to the overall effectiveness of the technology.

Sight

The visual system is the most critical sensory organ in humans, as over 80% of the information individuals perceive from the external environment is acquired through sight. Presently, vision plays a central role in enhancing the sense of immersion within virtual reality art. Colour, as a highly expressive visual language, is one of the most impactful and stimulating elements in visual perception. Different colours evoke distinct psychological responses. The two opposing categories of cool and warm colours elicit contrasting psychological feelings and effects. Typically, bright and vivid colours such as red, orange, and yellow are classified as warm colours, which are generally associated with energising and motivating effects. In contrast, cool colours, particularly blue and green, are known to evoke feelings of calmness and relaxation, making them the most soothing hues (Yang & Shen, 2022). Additionally, darker colours, such as black and brown, are often linked to negative emotions, including sadness (Hemphill, 1996). These psychological associations highlight the profound influence of colour on human emotions and perceptions.

Hearing

In sensory experience, hearing is the second most significant sense after vision and can assume a dominant role in specific contexts. Particularly within VR experiences, high-quality spatial audio can significantly enhance the sense of immersion. Sound exerts a profound influence on human emotions and behaviours, capable of evoking mood, feelings, and emotional responses. For example, numerous experimental studies have

demonstrated that music can induce subjective, behavioural, and physiological changes associated with reduced stress and anxiety (Yehuda, 2011; Zentner et al., 2008). Similarly, several studies have highlighted the positive effects of natural sounds, such as birdsong, flowing water, or wind, on promoting relaxation, alleviating stress, and evoking feelings of tranquillity (Ratcliffe et al., 2013; Song et al., 2023). Conversely, sound effects and music can also be employed to generate a sense of urgency or tension, thereby enhancing the excitement and engagement of an experience (Thakore, 2023). Relevant literature suggests that virtual reality holds significant potential as a novel approach to psychological relaxation. Participants need only a VR headset to access an unparalleled immersive experience. Throughout this process, virtual reality can stimulate multiple senses, including sight, hearing, and touch, facilitating emotional induction. This induction can manifest as emotional fluctuations through various elements, such as changes in colour and sound, thereby creating a dynamic and impactful experience.

Virtual Reality on Psychological Relaxation

Numerous studies have demonstrated that VR holds significant potential in enhancing various aspects of human life. It offers a more realistic and immersive experience, aiding in the treatment of medical conditions, stress reduction, and other therapeutic applications. VR was first introduced into the field of psychotherapy in 1993, and since then, psychologists have successfully utilised it to address mental health disorders such as phobias, schizophrenia, attention deficit disorders, and post-traumatic stress disorder, achieving notable outcomes. Furthermore, (Baghaei et al., 2021) highlighted VR as an effective intervention for anxiety disorders. Li et al. (2018) emphasised that one of the most significant advantages of VR in psychotherapy is its ability to provide patients with a sense of immersion, enabling them to relax, lower their psychological defences, and express their emotions more authentically. Similarly, Riva (2004) and colleagues argued that VR plays a crucial role in rehabilitation, particularly in alleviating anxiety and promoting relaxation, as it creates a sense of presence that traditional computer screens cannot replicate.

Research on the application of VR to psychological relaxation indicates that VR-generated environments differ markedly from guided imagery reliant on artificial imagination. By situating users within simulated relaxation scenarios, VR effectively reduces anxiety, stress, and pain, ultimately facilitating comprehensive physical and psychological relaxation. Notably, VR enables users to immerse themselves in these therapeutic environments without the need to leave their homes. As such,

VR will serve as a foundational technological framework for this innovative work, offering robust technical support for its development.

Related Works

Related Virtual Reality Creative Works

Traditional art forms, such as painting, are predominantly centred on fixed, tangible objects. However, the advent of VR has prompted an increasing number of artists to explore this technology as a means of artistic innovation. This shift has facilitated the creation of dynamic and immersive experiences, offering a novel form of artistic expression that allows audiences to engage more deeply with the artist's creative intentions and emotional undertones. Concurrently, there is a growing aspiration to harness this post-convergent art form—where virtual reality and art intersect—to deliver greater benefits to individuals' lives, extending beyond aesthetic appreciation to encompass broader psychological and experiential advantages.

Immersive Storytelling in Virtual Reality - Chalkroom

Chalkroom is a virtual reality artwork collaboratively created by American multimedia artist and musician Laurie Anderson and Taiwanese new media artist Hsin-Chien Huang. This innovative project like Figure 1 comprises eight thematically distinct virtual rooms, each imaginatively designed: The Cloud Room, The Anagram Room, The Dog Room, The Water Room, The Sound Room, The Dance Room, The Writing Room, and The Tree Room. Within these spaces, audiences are invited to navigate through clusters of narratives, transition between rooms of varying themes, and engage in an immersive journey of exploration (Jie, 2019).

Figure 1: Laurie Anderson & Hsin-Chien Huang, Chalkroom, 2017 (Theatre, 2018)

In the virtual reality artwork Chalkroom, audiences are afforded the opportunity to explore the virtual environment freely in 360 degrees from a first-person perspective, guided by a pre-established narrative framework. This innovative approach to interactive storytelling through VR sparked the interest, inspiring the creation of a creative work in which the audience assumes the role of the protagonist and actively experiences the progression and transformation of emotional states. This concept aims to deepen engagement and immersion, allowing participants to connect more profoundly with the narrative and its emotional dimensions.

Virtual Reality for Psychological Relaxation - Nature Treks VR

Nature Treks VR, a nature scene experience developed by John Carline's team at Greener Games, features nine meticulously crafted environments, including tropical beaches, African grasslands, and the deep blue sea. Each scene is thoughtfully designed to evoke specific emotional responses. Users are granted the freedom to navigate these environments, engaging in immersive interactions such as listening to birdsong beneath tree branches, gently brushing against an elephant, or standing shoulder-to-shoulder with the sun in a starry sky. These experiences are intended to foster a profound sense of tranquillity and connection with nature (Games, 2017).

Figure 2: Greener Games, Nature Treks VR, 2017 (Games, 2017)

Nature Treks VR in Figure 2 transcends a mere natural experience, serving as a tool to enable individuals of diverse educational backgrounds

and living environments to surpass the limitations of their imagination. By leveraging virtual reality, it facilitates a rapid transition into a state of relaxation. Additionally, the inclusion of multiple scenes within the work provided with design inspiration, aiming to craft a virtual reality artwork that offers a relaxing journey tailored to the needs of varied audiences.

Related Relaxation Creative Works

Since ancient times, art has been profoundly intertwined with human emotions, possessing the capacity to evoke resonance and even alter emotional states. Consequently, it has emerged as one of the most significant mediums through which artists convey their thoughts and articulate their emotions.

Colour Relaxation - Giorgio Morandi

Giorgio Morandi, an Italian painter and printmaker, is renowned for his muted colour palette. Morandi focused almost entirely on still life and landscapes, with his still-life works characterised by an absence of vibrant colours. Instead, he favoured the use of greys, whites, and other subdued tones to evoke a sense of tranquillity and serenity. In recent years, this low-saturation colour scheme has gained significant popularity on social media, where it is referred to as "Morandi Colour." This aesthetic has since become widely influential in the fields of design and fashion (TourBox, 2024).

Figure 3: Giorgio Morandi. Still Life, 1944 (Zwirner, 2024)

The low-saturation colours employed by Morandi serve to visually

diminish the intensity of colour's impact on human emotions as shown in Figure 3. In contrast to vivid and highly saturated hues, low-saturation colours exhibit a softer and more understated quality, capable of fostering a calming and serene atmosphere. Consequently, the incorporation of low-saturation colours within creative works can effectively communicate a sense of relaxation and emotional tranquillity to the audience, offering a form of spiritual comfort.

Nature Relaxation - Come on, Calm on

The project "Come on, Calm On" was conceptualised by Shma (2021), a landscape architecture firm based in Thailand, for the ThongEk Creative Neighbourhood. Figure 4 initiative employs natural elements to establish a 'therapeutic garden,' a dedicated space designed to host therapeutic activities aimed at counteracting the chaos of modern life through nature-based healing processes. The landscaping approach seeks to achieve a harmonious balance of body, mind, and spirit, utilising a composition of 70% natural elements and 30% hardscape. This design encourages visitors to engage all five senses, fostering relaxation and alleviating the stress accumulated from the demands of an urban, fast-paced lifestyle (Shma, 2021). The concept of Come on, Calm on, which employs engagement with nature to alleviate stress amidst the clamour of urban environments, holds potential for broader application across diverse fields. Extensive theoretical research underpins this notion, demonstrating its practical viability in real-world contexts. Furthermore, it provides valuable insights for fostering serene environments within the realm of virtual reality art.

Figure 4: Shma. Come on, Calm on, 2022 (Shma, 2021).

Physical Environment Relaxation - The Weird Sensation Feels Good

The Weird Sensation Feels Good in Figure 5 is an exhibition dedicated to exploring the phenomenon of Autonomous Sensory Meridian Response (ASMR). ASMR is characterised by a pleasurable and deeply relaxing sensation experienced in the brain, scalp, back, or other regions of the body, triggered by perceptual stimuli such as visual, auditory, tactile, or olfactory cues. Anecdotal evidence suggests that ASMR is increasingly being utilised as a form of self-administered therapy to mitigate the effects of loneliness, insomnia, stress, and anxiety. This exhibition was held at Stockholm's ArkDes Museum in 2020. The exhibition aims to bring the body and mind to a state of comfort to the audience through tactile and audio-visual stimulation. In this space, visitors can not only experience the perfect sound effects of ASMR with headphones but also lie down on a soft folding biomorphic pillow shaped like the brain, completely immersing themselves in the healing experience of ASMR, making every part of the body extremely relaxed (ArchDaily, 2020). The exhibition "Weird Sensation Feels Good" functions as a form of art therapy. Through the combination of a soft sofa and ASMR sound effects, it creates an environment designed to stimulate the senses and promote relaxation for its audience. This approach offers a conceptual framework for designing physical spaces that evoke a calming and restorative atmosphere.

Figure 5: ArkDes Museum. Weird Sensation Feels Good, 2020 (ArchDaily, 2020).

Conceptual Overview of Creative Work

This creative work is designed to assist individuals in alleviating the common anxiety associated with workplace pressure. By leveraging VR, an innovative medium, the audience shifts from passive observers in conventional exhibitions to active participants within the experience. Through a first-person immersive perspective, participants embark on a transformative journey from inner anxiety to a state of relaxation. This approach, complemented by meticulously designed calming environments, offers solace to those grappling with workplace anxiety, enabling them to restore their inner peace and resilience.

Presentation of Creative Work

The creative work "Rebirth" is an immersive virtual reality artwork that engages the audience by stimulating multiple sensory perceptions, including sight, hearing, and touch. By mobilising these senses, the artwork fosters a deeply immersive experience. It comprises three interrelated thematic virtual scenes: Anxiety, Break Away, and Relaxation. The details are as follows.

The First Virtual Scene, "Anxiety"

In the virtual scene "Anxiety", the audience experiences an infinite staircase from a first-person perspective, enveloped by a sea of flames while a relentless countdown reverberates in their ears. This urgent and oppressive environment compels continuous ascent and descent, serving as a poignant representation of anxiety. Much like the nature of anxiety itself, individuals often find themselves caught in an unending cycle of worry and fear see Figure 6.

Figure 6: The Virtual Scene of "Anxiety" (© Shan Gao 10/06/2024)

Furthermore, as the audience navigates the staircase, various phrases intended to evoke workplace anxiety are intermittently displayed on the stair treads. These carefully curated phrases are designed to reflect common concerns encountered in professional settings.

Figure 7: Phrases in the Virtual Scene of "Anxiety" (© Shan Gao 10/06/2024)

For instance, phrases such as "I have done my best, but my boss says I am not working hard enough." and "This project is very important like Figure 7. If I make a mistake, I could lose my job." function as piercing reminders, intensifying the immersive experience of anxiety. These statements compel the audience to reflect on their own workplace challenges, fostering a deep sense of resonance. Furthermore, this scene offers an alternative perspective on the pervasive nature of workplace stress and anxiety in modern society. Much like a shadow following its form, these psychological burdens are deeply ingrained, making them particularly difficult for individuals to escape.

The Second Virtual Scene, "Break Away"

In the virtual scene "Break Away" (see Figure 8), the audience enters a labyrinth enveloped in red and yellow fog. This dense mist induces a sense of disorientation, blurring sensory boundaries and heightening feelings of uncertainty. To navigate the maze, participants must confront their fears and explore with courage, ultimately discovering the path to escape. The deliberate use of red and yellow within the space symbolises encouragement and hope, creating a stark contrast to the preceding dark and oppressive atmosphere of "Anxiety". The "Break Away" in Figure 9

scene conveys a crucial message to the audience: adversity and anxiety need not be feared. Instead, individuals should confront these challenges with a positive mindset and the courage to overcome them, enabling them to surpass their own limitations.

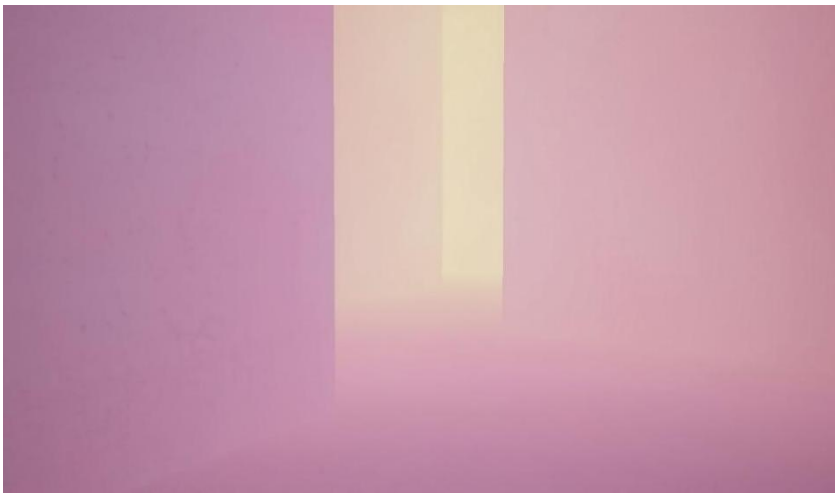

Figure 8: The Virtual Scene of “Break Away” (© Shan Gao 10/06/2024)

Figure 9: The Virtual Scene of “Break Away” (© Shan Gao 10/06/2024)

The Third Virtual Scene "Relaxation"

The virtual scene “Relaxation” in Figure 10 comprises two distinct

environments designed to offer a diverse relaxation experience. The first, "Meditation Relaxation", guides the audience through scientifically grounded breathing meditation exercises to promote relaxation. The second, "Nature Relaxation", enables the audience to experience tranquillity by immersing themselves in a serene seaside setting. Participants have the flexibility to engage with either or both experiences according to their preference.

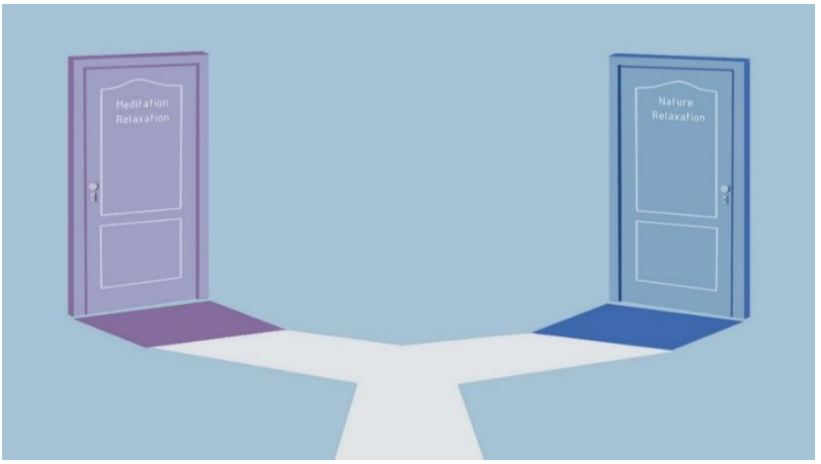

Figure 10: Choice of "Relaxation" Virtual Scene (© Shan Gao 10/06/2024)

Meditation Relaxation

The virtual scene "Meditation Relaxation"(Figure 11) employs low-saturation colours to cultivate a calming atmosphere. The audience follows the guiding sound of breath meditation, naturally synchronising their inhalations and exhalations. By focusing on the rhythm of their breathing, they are encouraged to clear their minds of distractions and concentrate on the present moment, fostering a sense of inner peace and tranquillity. Additionally, to enhance immersion and engagement, haptic feedback (vibration) is activated each time the audience presses the controller's triggers while exhaling. This tactile response serves as a reinforcement of their mental and emotional release, further deepening the meditative experience.

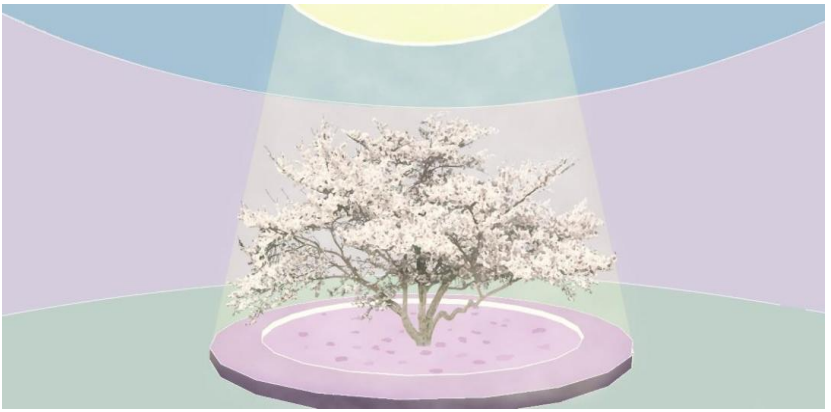

Figure 11: The Virtual Scene of "Meditation Relaxation" (© Shan Gao 10/06/2024)

Nature Relaxation

The virtual environment titled "Nature Relaxation" depicts a vast oceanic landscape as shown in Figure 12. Accompanied by the soothing sounds of gentle waves caressing the shore and the distant calls of seagulls, the audience is invited to wander freely along the beach, guided by the narrative. During this experience, they may encounter sea turtles or crabs moving leisurely alongside them. From sunrise to sunset(in Figure 12 and Figure 13), the scene offers an opportunity to immerse oneself in the tranquillity of the sea, fostering a sense of relaxation and serenity. More significantly, "Nature Relaxation" provides the audience with a moment of introspection, allowing them to pause, reflect, and reconnect with themselves in a calming and contemplative setting. This immersive experience not only facilitates mental release but also encourages a deeper engagement with one's inner thoughts and emotions.

Figure 12: The Virtual Scene of "Nature Relaxation" (© Shan Gao 10/06/2024)

Figure 13: The Virtual Scene of "Nature Relaxation" at Sunset (© Shan Gao 10/06/2024)

Design of the Space for Presenting Creative Work

The presentation of the creative work "Rebirth" will take place in a space designed to evoke a sense of calm and relaxation. The design details of the space are as follows:

The exhibition space in Figure 14 for the virtual reality experience is carefully curated to recreate a tranquil seaside atmosphere, encouraging the audience to reflect on and enhance their current state of well-being. The space is composed of three key areas: (A) a Rest and Waiting Area, (B) an Active Area, and (C) two projection displays.

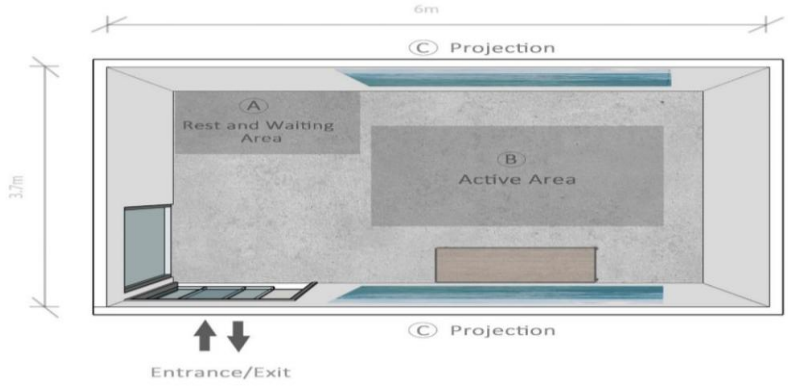

Figure 14: The Space Division (© Shan Gao 10/06/2024)

A) *Rest and Waiting Area*:

The Rest and Waiting Area is located opposite the venue entrance and is the first space the audience encounters upon entering. This area is designed to evoke the ambience of a beach relaxation setting, with blue LED lights illuminating the space to establish a calming atmosphere. Beach chairs, coconuts, and other decorative elements are strategically placed to immerse visitors in a soothing and comfortable environment. Here, the audience can take a moment to relax on the specially provided chairs or wait before embarking on their next virtual reality relaxation experience in Figure 15.

B) *Active Area:*

The Active Area is situated in the centre of the venue and is designated for audience interaction with the virtual reality creative work. Given the requirements for the use of VR devices, it is essential to ensure adequate space in this area. A minimum play area of 2 m x 1.5 m (6 ft 6 in x 5 ft) is required to accommodate the necessary movement and interaction.

C) *Two Projections*:

Videos of sea waves will be projected onto the front and back walls of the Active Area to further enhance the immersive seaside atmosphere in Figure 16.

Figure 15: Design of Area A (© Shan Gao 10/06/2024)

Figure 16: Design of Area B and C (© Shan Gao 10/06/2024)

Creative Work "Rebirth" Art Exhibition

The creative work “Rebirth” was presented as an art exhibition with the aim of guiding the audience on a journey of relaxation through the innovative medium of virtual reality. It was exhibited at Pongnoi Community Art Space in Chiang Mai, Thailand, from Saturday, August 17, to Friday, August 30, 2024. The exhibition utilised HTC Vive Cosmos VR devices, which include a headset and controller grips. The headset, with a combined pixel resolution of 2880 x 1700, ensures that “Rebirth” is presented with clarity and detail. However, due to the immersive nature of the VR headset, there is a potential for the audience to become disoriented and detached from the real world while engaging with the virtual environment, which may result in collisions or falls. To mitigate these risks, staff members were stationed throughout the exhibition to guide the audience and ensure their safety while using the VR headset. The following are detailed photos of the exhibition space in Figure 17, 18 and Figure 19.

Figure 17: The Audience Experience the Creative Work (© Shan Gao 20/08/2024)

Figure 18: The Audience in Rest and Waiting Area (© Shan Gao 20/08/2024)

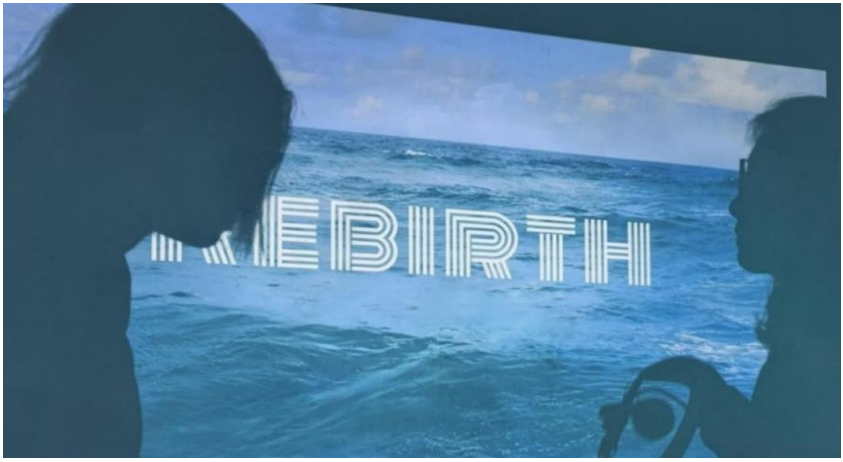

Figure 19: Projected on the Wall is a Staff Explaining the Dos and Don'ts for using VR to the Audience (© Shan Gao 20/08/2024)

Methodology

The methodology of this study is grounded in a qualitative approach, designed to explore the impact of virtual reality artwork on audience relaxation. Data were collected through interviews, aiming to capture the perspectives and opinions of individuals who engaged with the artwork during the exhibition period. The study involved over 30 participants who were interviewed in a secure and supportive environment, allowing them to share their reflections after experiencing the virtual reality artwork. Each interview lasted approximately 20 minutes and was

conducted in either English or Chinese. For Thai participants who were not proficient in English or Chinese, an interpreter fluent in Thai and English/Chinese facilitated the interviews. The interpreter signed a confidentiality agreement to safeguard the rights of both researchers and participants, ensuring no infringement occurred. Ethical considerations were of utmost importance in this research. Measures were implemented to guarantee the confidentiality and anonymity of all participants, adhering to rigorous ethical standards throughout the study.

Results and Discussion

The results of the virtual reality artwork "Rebirth" are derived from an analysis of conversations and behavioural observations with the audience throughout the duration of the exhibition. The audience's subjective responses to this creative work also serve as a valuable reference for future projects, which will be discussed in detail below.

Viewpoint of the Audience on Virtual Reality During the Exhibition

From the observations, the majority of the audience expressed excitement and curiosity about experiencing the creative work through virtual reality. One audience member, on the opening day, could not conceal his enthusiasm and mentioned that he had been eager to experience the exhibition ever since he saw the poster on social media. At the same time, it was evident that a few attendees were encountering virtual reality for the first time. They appeared unfamiliar and somewhat nervous with the headsets and controller grips while waiting to engage with the work. However, upon discovering that instructions for using the controller grips were provided on-site and that staff members were available to assist before the experience in Figure 20, they expressed relief, stating that these provisions made them feel secure and alleviated their concerns.

Figure 20: Controller Grips Instructions Prepared for the Audience to Read Before Experience (© Shan Gao 20/08/2024)

Furthermore, conversations with the audience after their VR experience revealed that the overall feedback was positive, which can be summarised as follows: The immersive audio-visual experience created by virtual reality provided the audience with a novel and unprecedented sensation, particularly when applied to the expression of art. One audience member commented that the virtual reality headset effectively blocked out sensory information from the physical world, allowing for undivided attention to the artwork itself. Another audience member, in a light-hearted manner, remarked that he felt as though he had become a part of the creative work. While intended as a joke, this comment reflects how the virtual world constructed by virtual reality can offer the audience a deeply immersive experience, drawing their focus to the scene crafted by the designer. These observations align with the original intention of using virtual reality as a medium for creative expression.

Viewpoint of the Audience on Feeling Relaxed While Experiencing Creative Work

During the exhibition, there existed the opportunity to engage with multiple audience members and gather their opinions on whether the virtual reality artwork could assist in relieving stress and promoting relaxation. The following presents some interesting feedback. A Chinese audience member shared her personal experience of suffering from anxiety due to work pressure. She described the process of engaging with the virtual reality artwork "Rebirth" as similar to visiting a medical professional for consultation. She likened the virtual scene of "Anxiety" to a doctor asking about symptoms, the "Break Away" scene to psychological counselling that helps the patient overcome their fear of anxiety, and ultimately, the "Relaxation" scene to the patient achieving a state of relaxation through treatment. This process, she noted, was facilitated through the artistic transformation of the experience, enhanced by the unique qualities of virtual reality, which made it more engaging and accessible for individuals seeking relaxation. Coincidentally, this audience member also practices breathing meditation daily, which she considers an extremely effective means of relaxation. From her comments, it is evident that her perspectives align with the objective of using virtual reality art to guide the audience on a journey of relaxation.

Another key finding emerged from a conversation with a company leader regarding the potential use of "Rebirth" in the company's staff lounge to assist employees in relieving work-related stress. It was noted that convenient VR devices could help employees reach a state of relaxation in a relatively short period of time, which would positively impact their physical and mental well-being. Moreover, the continuous experiential scene design was found to be suitable not only for employees

experiencing psychological sub-health, encouraging them to confront anxiety and actively seek relaxation but also for regular employees who could use it as a means of unwinding during breaks, thus helping prevent anxiety. Additionally, observing the audience's facial expressions during the experience revealed emotional shifts, from initial tension to the gradual relaxation of their facial muscles. These reactions are indicative of a positive and beneficial response to the creative work.

Figure 21 The Audience Uses VR to Experience the Creative Work (© Shan Gao 20/08/2024)

Other Observations During the Exhibition

On the opening day, it was observed an audience member requesting assistance from a friend to capture a photograph of his shadow alongside the video projection while experiencing the creative work in Figure 21. In a subsequent interview, the audience member explained his reasoning. He mentioned that while waiting in the Rest and Waiting Area, he noticed not only the dynamic video projection of waves on the wall in front of the experience area, but also that when individuals stood in front of the

projector, their bodies blocked the light, casting their shadows onto the wall in Figure 22. This effect gave him the impression of being surrounded by the sea, which he found intriguing. This discovery proved to be an unexpected benefit of the exhibition. The act of capturing still images and dynamic videos of the audience engaging with the creative works while wearing VR devices enhanced their sense of immersion in the experience.

Figure 22 The Shadows of People by a Projector (© Shan Gao 20/08/2024)

Overall, during the exhibition of the virtual reality artwork “Rebirth”, in addition to receiving positive feedback through the observation of the audience's behaviour while participating in the experience, the deeper insights was gained into the audience's favourable evaluation of the work's effectiveness in alleviating anxiety and promoting relaxation through conversations with the attendees. The majority of comments indicated that the creative work had successfully met its intended objectives. Moreover, “Rebirth" also encouraged the audience to adopt a more positive outlook, recognise that anxiety is not something to fear, learn to accept it, and explore ways to relax.

Discussion

When examining the experience of viewers interacting with the VR artwork “Rebirth”, it is evident that their engagement with art undergoes a profound transformation within a virtual environment. The varied responses from the audience provide significant insights into both the enthusiasm generated by exploring new technology and the initial apprehensions that accompany its use. The predominant assessment of audience reactions to VR can be characterised as positive, with many individuals expressing considerable interest in the technology. Some participants described their interaction with art through VR as exhilarating, while others were captivated merely by the promotional materials. This enthusiasm suggests that VR is perceived as an innovative medium of communication, potentially enhancing the reception of artistic works. However, the experiment also revealed that certain attendees experienced nervousness prior to using the equipment, and some were unfamiliar with the concept of VR technology altogether. These challenges highlight a barrier for new users, though such concerns were somewhat alleviated through the provision of instructions and staff assistance. Nonetheless, it is evident that first-time users may encounter difficulties in transitioning to VR without adequate guidance.

Furthermore, feedback collected from participants following the VR experience emphasised its effectiveness, particularly in terms of its

immersive quality. Several audience members noted that VR eliminates common sensory distractions typically encountered in physical spaces. This characteristic underscores one of the defining features of VR: its ability to offer an enhanced depth of perspective, granting audiences an implied 'access point' to art that renders it more tangible and interactive. In a light-hearted remark, one participant commented that they felt as though they had become part of the sculpture rather than merely observing it, illustrating the potential of VR to deeply engage viewers with artistic creations. Collectively, these findings suggest that, despite initial apprehensions among newcomers, VR possesses a unique capacity to transform and fully immerse audiences in the presentation and reception of art. While future applications of VR can be further refined to improve user-friendliness and deepen emotional and intellectual responses to artworks, it is clear that the medium holds significant promise for redefining how art is experienced and appreciated.

Conclusion

In summary, the virtual reality artwork "Rebirth" demonstrates the potential of VR technology to facilitate relaxation and emotional processing. By guiding participants through an engaging yet secure exploration of anxiety, release, and calm, "Rebirth" represents a promising endeavour in addressing the pervasive anxiety stemming from workplace pressures. The favourable reception of the exhibition underscores the viability of VR experiences as a means of mitigating work-related stress, as such an environment allows individuals to confront and engage with their emotional states in a more intuitive and immersive manner compared to conventional therapeutic approaches. Furthermore, this virtual reality artwork supports the notion that technology can serve as an effective tool for meeting contemporary society's needs for relaxation and emotional recovery, thereby paving the way for future innovations in the realm of mental health.

References

ArchDaily. (2020). *Weird Sensation Feels Good Exhibition at ArkDes / ĒTER*. https://www.archdaily.com/941382

Baghaei, N., Chitale, V., Hlasnik, A., Stemmet, L., Liang, H.-N., & Porter, R. (2021). Virtual reality for supporting the treatment of depression and anxiety: scoping review. *JMIR mental health*, *8*(9), e29681. https://doi.org/10.2196/29681

Beehr, T. (1995). Psychological stress in the workplace. In: Routledge. https://doi.org/10.4324/9781315795560

Bratman, G. N., Anderson, C. B., Berman, M. G., Cochran, B., De Vries, S., Flanders, J., Folke, C., Frumkin, H., Gross, J. J., & Hartig, T. (2019). Nature and mental health: An ecosystem service perspective. *Science advances*, *5*(7), eaax0903.

https://doi.org/10.1126/sciadv.aax0903
Commission, E. (2010). *Health and safety at work in Europe (1999–2007)* https://data.europa.eu/doi/10.2785/38630.
Games, G. (2017). Nature treks VR. *Nature treks VR. GreenerGames*. https://www.greenergames.net/nature-treks
Gascon, M., Zijlema, W., Vert, C., White, M. P., & Nieuwenhuijsen, M. J. (2017). Outdoor blue spaces, human health and well-being: A systematic review of quantitative studies. *International journal of hygiene and environmental health*, *220*(8), 1207-1221. https://doi.org/10.1016/j.ijheh.2017.08.004
Haslam, S. A., O'Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British journal of social psychology*, *44*(3), 355-370. https://doi.org/10.1348/014466605X37468
Hemphill, M. (1996). A note on adults' color–emotion associations. *The Journal of genetic psychology*, *157*(3), 275-280. https://doi.org/10.1080/00221325.1996.9914865
Huang, J., Guo, G., Tang, D., Liu, T., & Tan, L. (2019). An eye for an eye? Third parties' silence reactions to peer abusive supervision: the mediating role of workplace anxiety, and the moderating role of core self-evaluation. *International Journal of Environmental Research and Public Health*, *16*(24), 5027. https://doi.org/10.3390/ijerph16245027
Jie, W. (2019). *Take journey through interactive VR 'Chalkroom'*. https://www.shine.cn/feature/art-culture/1908240781/
Kim, H.-s., & Kim, E. J. (2018). Effects of relaxation therapy on anxiety disorders: a systematic review and meta-analysis. *Archives of psychiatric nursing*, *32*(2), 278-284. https://doi.org/10.1016/j.apnu.2017.11.015
Li, Z., Wang, Z., Zhu, Z., & Zhan, X. (2018). Performance pressure and unethical pro-organizational behavior: Based on cognitive appraisal theory of emotion. *Chinese Journal of Management*, *15*(3), 358-365. http://manu68.magtech.com.cn/Jwk_glxb/EN/abstract/abstract11308.shtml
Lowood, H. E. (2025). Virtual reality. In *Britannica*. https://www.britannica.com/technology/virtual-reality
Organization, W. H. (2022). Mental disorders. https://www.who.int/news-room/fact-sheets/detail/mental-disorders
Ratcliffe, E., Gatersleben, B., & Sowden, P. T. (2013). Bird sounds and their contributions to perceived attention restoration and stress recovery. *Journal of Environmental Psychology*, *36*, 221-228. https://doi.org/10.1016/j.jenvp.2013.08.004
Riva, G. (2004). Cybertherapy: Internet and virtual reality as assessment and rehabilitation tools for clinical psychology and neuroscience. *IOS Press Ebooks*, *99*. https://ebooks.iospress.nl/volume/cybertherapy
Shma. (2021). Come on Calm on. https://www.archdaily.com/968159/come-on-calm-on-shma
Song, I., Baek, K., Kim, C., & Song, C. (2023). Effects of nature sounds on the attention and physiological and psychological relaxation. *Urban Forestry & Urban Greening*, *86*, 127987. https://doi.org/10.1016/j.ufug.2023.127987
Sprigg, C. A., Niven, K., Dawson, J., Farley, S., & Armitage, C. J. (2019). Witnessing workplace bullying and employee well-being: A two-wave field study. *Journal of occupational health psychology*, *24*(2), 286. https://doi.org/10.1037/ocp0000137
Thakore, D. (2023). Sound and Emotion: The Key to Immersive Experiences. *Medium*. https://medium.com/@diwakar.thakore/sound-and-emotion-the-key-to-immersive-experiences-6b61f7d21103
Theatre, T. (2018). Laurie Anderson & Hsin-Chien Huang: Chalkroom. https://totaltheatre.org.uk/laurie-anderson-hsin-chien-huang-chalkroom/
Titlebaum, H. M. (1988). Relaxation. *Holistic nursing practice*, *2*(3), 17-25.

https://doi.org/10.1177/153321019800400206
TourBox. ((2024)). What Is Morandi Color & How to Achieve in Photoshop? https://www.tourboxtech.com/en/news/morandi-color.html
Tussyadiah, I. P., Wang, D., Jung, T. H., & Tom Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. *Tourism management*, *66*, 140-154. https://doi.org/10.1016/j.tourman.2017.12.003
Yehuda, N. (2011). Music and Stress. *Journal of Adult Development*, *18*. https://doi.org/10.1007/s10804-010-9117-4
Zeidner, M. (2005). Evaluation anxiety: Current theory and research. In. Guilford Publications: Handbook of competence and motivation/Guilford Press.
Zentner, M., Grandjean, D., & Scherer, K. R. (2008). Emotions evoked by the sound of music: characterization, classification, and measurement. *Emotion*, *8*(4), 494. https://doi.org/10.1037/1528-3542.8.4.494
Zwirner, D. (2024). Giacometti / Morandi: Moments Immobiles. https://www.davidzwirner.com/news/2024/giacometti-morandi