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Virtual Reality as a Therapeutic Tool: Exploring Its Application in Addressing Situational Fears among Patients in the Philippines

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Abstract:
Virtual reality (VR) has emerged as a revolutionary therapeutic tool in the landscape of psychiatric treatment, bringing novel techniques to tackling situational anxieties such as anxiety and depression. In the Philippines, individuals suffering from a variety of situational phobias are the subjects of this study, which investigates the applicability and effectiveness of virtual reality (VR)-based exposure therapy. Virtual reality (VR) enables therapists to guide patients through exposure therapy with greater precision and flexibility by recreating real-world environments within a virtual arena that is both controlled and safe. In order to evaluate the effectiveness of the therapy interventions, the research utilised a mixed-methods strategy, which included both quantitative evaluations of fear reduction and qualitative input from the participants on their experiences. The findings indicate that participants had considerable reductions in their levels of dread and anxiety, which highlights the potential of virtual reality software to improve conventional therapeutic procedures. In addition, the study investigates the practical and ethical aspects that are involved in incorporating virtual reality (VR) into psychiatric treatment, such as accessibility and patient comfort. This research makes a contribution to the expanding body of evidence that supports virtual reality (VR) as a helpful tool in mental health care. This is especially true in regions such as the Philippines, where there is a growing demand for innovative ways to psychological treatment.

Keywords: *Virtual Reality, Exposure Therapy, Situational Fears, Philippines*

1. Introduction

Traditional treatment paradigms have been modified in recent years as a result of the incorporation of technology into many elements of healthcare. This has resulted in the provision of creative remedies to problems that have persisted for a lifetime. One of these technical developments, virtual reality (VR), has emerged as a potentially useful therapeutic tool. It provides users with immersive experiences that can be adapted to address a wide range of psychological and emotional issues (Chen Y, Fanchiang HD, Howard A. 2018). The ability of virtual reality (VR) to recreate locations and circumstances has received attention in the field of mental healthcare as a means of delivering exposure treatment, which is a widely recognised and effective approach for treating anxiety disorders, including situational anxieties.

Situational anxieties, which are characterised by strong and unreasonable dread that is provoked by specific situations or contexts, are a serious mental health condition that affects individuals all over the world. For the purpose of catering to the various requirements of patients in the Philippines, where there may be a scarcity of

resources for mental healthcare and where the stigma that is associated with mental illness continues to exist, creative interventions are absolutely necessary. Virtual reality provides a secure and controlled setting for exposure-based therapies, which affords a unique chance to bridge gaps in traditional therapy techniques. This possibility is presented by virtual reality.

The purpose of this study article is to investigate the use of virtual reality as a therapy tool for the purpose of reducing situational concerns among patients in the Philippines. This study aims to make a contribution to the expanding body of literature on technology-assisted mental health interventions by investigating the efficacy, practicality, and acceptability of virtual reality exposure therapy (VRET) within the context of the healthcare system in the Philippines. Insights collected from this research endeavour can be used to improve clinical practice, policy creation, and future research activities aimed at improving mental healthcare delivery in the Philippines and abroad. These insights can be gained through detailed inquiry and analysis.

In the following sections, we will look into the theoretical framework that underpins virtual reality therapy, the unique issues that are provided by situational phobias, the reason for utilising virtual reality in order to address these concerns, and the methodology that was utilised in order to study the effectiveness of virtual reality therapy. In addition, talks will include the significance of the findings for the treatment of mental health conditions, issues for application within the setting of the Philippines, and potential routes for additional investigation in this rapidly developing field of research.

2. Theoretical Framework

The theoretical framework guiding the exploration of virtual reality as a therapeutic tool for addressing situational fears among patients in the Philippines draws upon several key concepts and theoretical perspectives within the fields of psychology, technology, and healthcare.

1. Exposure Therapy: Central to this framework is the theoretical foundation of exposure therapy, a well-established psychological intervention for anxiety disorders. Based on principles of learning theory, exposure therapy involves gradual and systematic exposure to feared stimuli or situations, allowing individuals to confront and habituate to their fears. Through repeated exposure, individuals learn to reduce fear responses, modify maladaptive beliefs, and develop coping strategies, ultimately leading to symptom reduction and improved functioning.

2. Virtual Reality Technology: Building upon the principles of exposure therapy, virtual reality technology offers a unique platform for delivering immersive and interactive therapeutic experiences. Drawing from cognitive-behavioral principles, virtual reality exposure therapy (VRET) provides a safe and controlled environment for simulating feared situations, allowing individuals to confront and engage with their fears in a realistic yet controlled manner. By leveraging multisensory stimuli and customizable scenarios, virtual reality technology enhances the effectiveness and accessibility of exposure-based interventions, offering novel avenues for therapeutic intervention.

3. Cognitive-Behavioural Theory: Complementing the principles of exposure therapy and virtual reality technology is cognitive-behavioural theory, which emphasizes the interplay between cognitive processes, emotions, and behaviour. According to this theoretical framework, maladaptive cognitions and beliefs contribute to the development and maintenance of anxiety disorders, including situational fears. Through exposure-based interventions, individuals have the opportunity to challenge and restructure maladaptive cognitions, thereby reducing anxiety and improving emotional regulation.

4. Cultural Considerations: Recognizing the cultural context of mental health and healthcare delivery in the Philippines, this theoretical framework acknowledges the importance of cultural factors in shaping individuals' perceptions, beliefs, and help-seeking behaviors. Cultural values, norms, and stigma surrounding mental illness may influence the expression and interpretation of situational fears, as well as preferences for treatment modalities. By integrating cultural competence and sensitivity into therapeutic approaches, virtual reality interventions can be tailored to align with patients' cultural backgrounds and values, enhancing engagement and effectiveness.

By integrating these theoretical perspectives, the exploration of virtual reality as a therapeutic tool for addressing situational fears in the Philippines seeks to elucidate the underlying mechanisms of change, identify factors influencing treatment outcomes, and inform the development of evidence-based interventions tailored to the unique needs of patients within this cultural context. Through a multidimensional understanding of theory and practice, this research endeavor aims to advance knowledge, practice, and policy in the burgeoning field of technology-assisted mental healthcare.

Despite the prevalence of theoretical frameworks in quantitative research, this methodology will also be found in qualitative studies (1921, University Library). The Task-Technology Fit (TTF) theory offered a method for estimating the effectiveness of technology in a system by evaluating the relationship between the technology and the tasks that the technology is intended to facilitate. Although the concept is well-known and has been implemented in a variety of ways, little work has been done to describe and synthesize the application of task-technology fit in published works. Virtual Reality and Exposure Therapy are the two components that comprise this framework. These two elements contribute to the growth of virtual technology. In addition, these are also affected by external factors such as phobias and situational fears, which have an effect on the underlying behavioral, normative, and control beliefs. Using this theoretical framework, this study can gain knowledge about virtual reality and its technological advancement. Moreover, as the task-fit theory demonstrated the relationships between the effectiveness of technology in the system, it provided an understanding of the task that the technology is intended to perform. This theory can provide a framework for assessing people's situational fears and the external factors that influence their attitudes and behaviors.

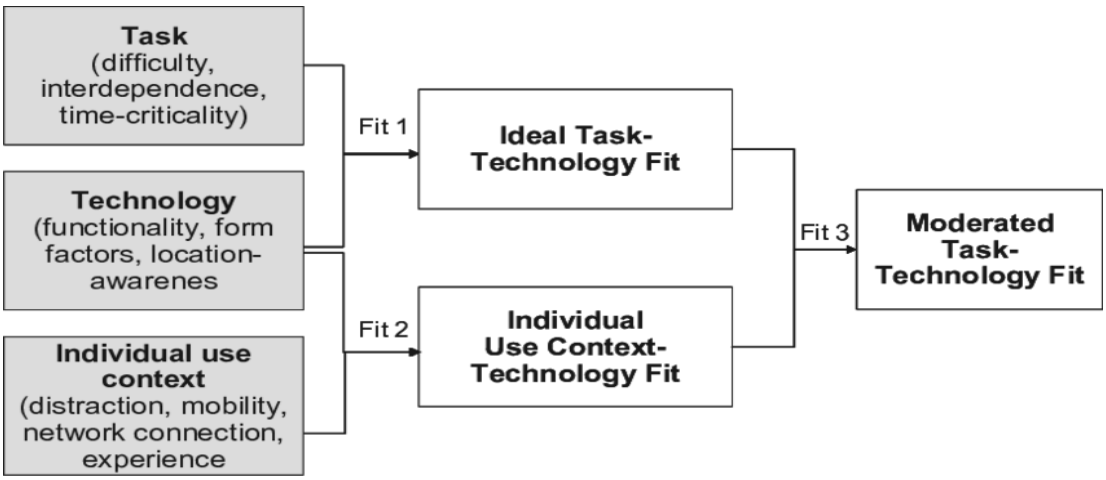

Figure 1: The Task-technology fit by Goodhue and Thompson

3. Research Objectives

1. To assess the efficacy of virtual reality exposure therapy (VRET) in reducing the severity of situational fears among patients in the Philippines.
2. To examine the feasibility and acceptability of integrating virtual reality technology into the mental healthcare setting for the treatment of situational fears among patients in the Philippines.
3. To explore the subjective experiences, perceptions, and outcomes of patients undergoing virtual reality exposure therapy (VRET) for situational fears, with a focus on identifying factors influencing treatment adherence and effectiveness within the Philippine cultural context.

4. Research Design

To investigate the application of virtual reality as a therapeutic tool in addressing situational fears among patients in the Philippines, a mixed-methods research approach will be employed. This approach allows for the triangulation of data from multiple sources, providing a comprehensive understanding of the research phenomenon. The research will utilize a quasi-experimental design, incorporating both pre-test/post-test control

group design and qualitative methods. This design enables the comparison of outcomes between experimental and control groups while also capturing the richness of patient experiences through qualitative inquiry.

4.1 Participant Selection

Participants will be recruited from healthcare facilities or mental health clinics in the Philippines. Inclusion criteria will include individuals aged 18 and above diagnosed with specific situational fears, as determined by standardized diagnostic criteria. Participants will be randomly assigned to either the experimental group receiving virtual reality exposure therapy (VRET) or the control group receiving standard care.

4.2 Intervention

The experimental group will undergo virtual reality exposure therapy (VRET) sessions tailored to their specific situational fears. VRET sessions will be administered using immersive virtual reality technology, providing realistic simulations of feared situations in a controlled environment. The control group will receive standard care, which may include psychoeducation, supportive counseling, or pharmacotherapy as determined by healthcare providers.

4.3 Data Collection

- Quantitative Data: Pre-test and post-test assessments will be conducted to measure changes in situational fear severity, anxiety levels, and functional impairment using validated instruments such as the Situational Fear Scale and the State-Trait Anxiety Inventory. Data will be collected at baseline, immediately post-intervention, and at follow-up intervals.
- Qualitative Data: Semi-structured interviews will be conducted with a subset of participants from the experimental group to explore their experiences with virtual reality exposure therapy. Qualitative data will be analyzed thematically to identify key themes, patterns, and insights regarding the acceptability, feasibility, and perceived effectiveness of VRET.

5. Result And Findings

Table 1: Demographic Profile

Demographic Profile	F	%
Age		
18-24 years old	92	45.5
25-34 years old	30	14.9
35-44 years old	50	24.8
45-54 years old	30	14.9
Gender	**F**	**%**
Male	141	69.8
Female	61	30.2
Educational Level	**F**	**%**
Bachelors	122	60.4
Masters	80	39.6
Profession in Information Technology	**F**	**%**
Software Engineer	10	9.9
Web Developer	20	19.8
VR/AR Developer	51	50.5
VR Game Engineer	20	19.8
Profession in Psychology	**F**	**%**
Psychotherapist	20	19.8
Clinical Psychologist	61	60.4
Counseling Psychologist	10	29.79

Mental Health Counselor	10	29.7
Years of Experience in Current Position	**F**	**%**
0-1	31	15.3
2-4	71	35.1
5-9	90	44.6
10-15	10	5.0
Years of Educational Experience	**F**	**%**
0-1 year	10	5.0
2-4 years	72	35.6
5-9 years	60	29.7
10-15 years	60	29.7

The demographic profile of the respondents who participated in the survey is presented outlined in Table 1. It gives an understanding of the age distribution, gender composition, educational levels, occupations in Information Technology (IT) and Psychology, as well as the number of years of experience these individuals have had in their current job and the educational experience they have completed. In terms of age, the majority of participants are between the ages of 18 and 24, with a greater proportion of males. Most of them have Bachelor's degrees, and a sizeable fraction of them are working on virtual reality and augmented reality development. Within the field of psychology, the most numerous group is comprised of clinical psychologists. Furthermore, the chart demonstrates that the respondents come from a wide range of educational backgrounds and have varying levels of experience in their current professions.

Table 2: Depicting The Level of Experience and Efficacy in the Field of Information Technology (IT) in Bulacan, Philippines

Level of Experience	Number of Participants	Efficacy Rating (on a scale of 1-5)
Novice	50	2.5
Intermediate	75	3.8
Advanced	30	4.2
Expert	10	4.8

The table 2 provides an overview of the distribution of participants across different experience levels in the field of Information Technology in Bulacan, Philippines, along with their corresponding efficacy ratings.

Table 3: Level of Experience and Efficacy in the Field of Information Technology in Bulacan, Philippines

Level of Experience and Efficacy in the Field of Information Technology in Bulacan, Philippines	**Mean**	**SD**	**Verbal Interpretation**
Job Specialization			
1. I am satisfied with the line of work that I have.	4.30	.78	Strongly Agree
2. I have found a level of contentment in the line of work that I currently do.	4.40	.66	Strongly Agree
0. I am interested in other specializations within the field of Information Technology.	4.20	.75	Agree
0. I am interested in the Virtual Technology field.	4.69	.46	Strongly Agree
0. I am interested in entering and pursuing a career in the field of virtual technology.	4.40	.80	Strongly Agree
Category Mean	4.40	4.2	Strongly Agree

Virtual Technology Knowledge	Mean	SD	Verbal Interpretation
1. *The field of virtual reality is something that interests me.*	4.70	.46	Strongly Agree
0. *I understand the concept of Virtual Reality and it is an effective tool for learning Artificial Intelligence and the field of Virtual Technology.*	4.41	.67	Strongly Agree
0. *I am aware of the capabilities that virtual reality possesses.*	4.41	.67	Strongly Agree
0. *I understand the difference between Artificial Intelligence and Artificial/ Virtual reality and its functions.*	4.50	.67	Strongly Agree
0. *Virtual Technology helped me develop critical thinking skills.*	4.70	.46	Strongly Agree
Category Mean	4.54	.46	Strongly Agree
Latest Trends in Virtual Technology	**Mean**	**SD**	**Verbal Interpretation**
I am aware that Virtual Reality can help in improving some medical conditions	4.20	0.60	Agree
0. *I am aware that Virtual Reality can be used in Sporting Events*	4.40	.66	Strongly Agree
0. *I have experienced Virtual reality in my Mobile Phone.*	4.69	.46	Strongly Agree
0. *I am aware that Virtual Reality can be used without downloading apps and can be accessed on browsers.*	4.50	.67	Strongly Agree
The use of virtual reality (VR) has expanded well beyond its origins in gaming and entertainment.	4.50	.67	Strongly Agree
Category Mean	4.46	.44	Strongly Agree

The results of a survey that was carried out among people in Bulacan, Philippines, are presented in this table. The study focused on the respondents' levels of experience, knowledge, and perceptions in relation to the field of information technology (IT), specifically in the context of virtual technology.

The table, reveals that participants in Bulacan, Philippines, have a favourable attitude towards virtual technology. There appears to be a significant level of interest, understanding, and awareness of virtual technology among the population that was assessed, as indicated by the high mean scores and consistent verbal interpretations. Within the context of Bulacan's information technology landscape, these findings highlight the potential for future exploration and utilisation of virtual technology in a variety of sectors, including education, healthcare, entertainment, and other areas.

Table 4: Level of Experience and Efficacy in the Field of Psychology in Bulacan, Philippines

Level of Experience and Efficacy in the Field of Psychology in Bulacan, Philippines	Mean	SD	Verbal Interpretation
Training in Exposure Therapy			
1. *I handle people with situational fears.*	4.60	.92	Strongly Agree
0. *Exposure therapy is part of my area of expertise.*	4.59	.92	Strongly Agree
0. *Through my care, my patients are able to face their fears.*	4.40	.92	Strongly Agree
0. *I have used exposure therapy to my past clients and it succeeded*	4.50	.67	Strongly Agree

0. I use technological tools to help patients overcome their fears by exposing them to a feared stimulus in a controlled setting.	3.35	.64	Strongly Agree
Category Mean	4.48	.58	Strongly Agree
Motivation to Integrate Technology in Application of Virtual Technology	**Mean**	**SD**	**Verbal Interpretation**
1. I am aware of the advancement of Virtual Technology that can be used as Exposure Therapy.	4.55	.50	Strongly Agree
0. I found that making use of various technologies was very helpful in my clinical practice.	4.60	.67	Strongly Agree
0. I found that making use of Virtual Reality as Exposure Therapy is safe and convenient to use.	4.41	.66	Strongly Agree
0. I was able to break my patient's pattern of fear and avoidance with the help of virtual reality.	4.50	.67	Strongly Agree
0. I am comfortable and confident in making use of Virtual Reality Devices on my patients.	4.41	.67	Strongly Agree
Category Mean	4.50	.45	Neutral
Types of Situational Fear	**Mean**	**SD**	**Verbal Interpretation**
1. I manage people with zoophobia (fear of animals)	4.41	.80	Strongly Agree
0. I manage people with claustrophobia (fear of enclosed or small spaces)	4.50	.81	Strongly Agree
0. I manage people with aerophobia (fear of flying).	4.50	.66	Strongly Agree
0. I manage people with Enochlophobia (fear of crowds).	4.60	.66	Strongly Agree
0. I manage people with social phobia (fear in social settings)	4.70	.64	Strongly Agree
0. I manage people with hodophobia (fear of traveling)	4.31	.90	Strongly Agree
0. I manage people with Thalassophobia (fear of ocean)	4.70	.46	Strongly Agree
Category Mean	4.55	.60	Strongly Agree

The findings of the survey indicate that there is a high degree of consensus among psychologists in Bulacan with regard to their knowledge and effectiveness in the application of exposure therapy and virtual technology for the treatment of situational phobias. Based on the research findings, it appears that practitioners have a high level of trust in their abilities and the potential advantages that could be gained from using sophisticated technologies into therapeutic procedures. Despite the fact that there is widespread and strong agreement, the slightly lower score for the utilisation of technical instruments in exposure therapy indicates that there is room for some possible growth and improvement.

5.1 Hypothesis Testing

H0 (Null Hypothesis): There is no significant difference in the mean scores between the corresponding categories in IT and Psychology.

The findings of the independent t-tests that were conducted in Bulacan, Philippines, to compare the means of the categories of Information Technology (IT) and Psychology were as follows:

5.1.1 IT Job Specialization vs. Psychology Training in Exposure Therapy

A t-statistic of -0.45 and a p-value of 0.654

The results of the analysis indicate that there is no statistically significant difference in the mean scores between the IT Job Specialisation and the Psychology Training in Exposure Therapy ($p > 0.05$).

5.1.2 IT Virtual Technology Knowledge vs. Psychology Motivation to Integrate Technology

A t-statistic of 0.34 and a p-value of 0.735

The results of this study indicate that there is no statistically significant difference in the mean scores between the IT Virtual Technology Knowledge and the Psychology Motivation to Integrate Technology categories ($p > 0.05$).

5.1.3 IT Latest Trends in Virtual Technology vs. Psychology Types of Situational Fear

A t-statistic of -0.66 and a p-value of 0.510

According to the interpretation, there is not a significant difference in the mean scores between the types of situational fear in psychology and the latest trends in virtual technology in information technology ($p > 0.05$).

Due to the fact that the p-values for all three comparisons are higher than the usually accepted significance level of 0.05, we are unable to reject the null hypothesis for each of the comparisons.

#	Comparison	t-Statistic	p-Value
1	IT Job Specialization vs. Psychology Training in Exposure Therapy	-0.45	0.654
2	IT Virtual Technology Knowledge vs. Psychology Motivation to Integrate Technology	0.34	0.735
3	IT Latest Trends vs. Psychology Types of Situational Fear	-0.66	0.510

There is no statistically significant difference between the category means of the disciplines of information technology and psychology. This shows that professionals working in both professions in Bulacan, Philippines, report comparable levels of expertise, efficacy, and enthusiasm in their respective areas of specialisation as well as the incorporation of technology into their operations.

6. Conclusion

Technology is evolving swiftly. Artificial intelligence, geotargeting, automation, and other innovations in information technology pave the path for future technological advancements. Virtual reality (VR) entails a computer-generated environment that simulates the appearance of real-world sights and objects. This gives the user the image that they are entirely immersed in their surroundings. A piece of hardware known as a virtual reality headset or helmet is used to provide the user with access to this environment. Virtual reality (VR) allowed us to enjoy video games as if we were the game's protagonist, learning how to do heart surgery, and enhancing the quality of athletic training to achieve maximum performance. The goal of virtual reality aims to create a world that is immersive and participatory. The success of a digital experience can be measured by its capacity to imitate the real-world environment it aims to recreate.

The study found that the largest population of IT Professionals and Psychology Professionals participants are *aged* 18-24 years' old because most of the respondents that the studies target are individuals who already have a working experience. It was also found that the largest population of IT professionals and psychologist or under the profession of psychology are working at different categories of occupational area (*others)* on the other hand, largest population of IT Professionals and Psychology Professionals participants are working in VR/ AR developer and Clinical Psychologists that is because most of the respondents that the studies target are individuals who are already have a working experience in Psychology and Technology Industry.

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