

The Use of Virtual Reality Technology as a Training tool to Tackle Stage Fright: Singing Performance

Sabrinaz Yusof and SN Baharom

Faculty of Art & Design, Universiti Teknologi MARA (Perak), Malaysia.

Abstract: This paper proposes a conceptual framework on how virtual reality technology can be used as a training tool to help tackle eye contact in stage fright. In this modern era, the demand for new tools keeps thriving as people tend to seek help from the internet, gadgets, or applications rather than the experts itself. This paper explained how eye contact could affect stage fright and how they can be trained using virtual reality technology. Existing studies will be use and will be included in the literature review to support this research.. This research is preliminary to the existed studies that focusing on stage fright that specifically for singing performance. Therefore, this research can be conducive for other designers if they want to combine other stage fright issues such as combining stage fright of presenting with stage fright of singing.

Key words: *Virtual Reality Technology, Stage Fright, Eye Contact, Performance Anxiety, Psychiatric Treatment*

INTRODUCTION

Social anxiety disorder or social phobia is defined as a constant and extensive fear of social or performance situations in which the person fear of being scrutinized by others and exposed to unfamiliar people. The individual concerns that in such situations, he or she might say or act in a way that will result in embarrassment or humiliation [1]. However, there are many forms of social anxiety which one of them is performance anxiety [2]. It is interpreted as a constant, unreasonable fear of exposure to be evaluated in certain performance situations, mainly in public speaking, singing, musical, theatre or another sort of performances [3].

Even in people with chronic physical conditions, social anxiety disorders such as many other anxiety disorders and depressive disorders [4] have an individual burden and functional impairment including decreased performance in the workplace, increased financial costs and reduced quality of life related to health [5]. Despite the extent of social anxiety-related agony and disability, only about half of people with the disorder certainly seek treatment, after 15-20 years of symptoms [6].

In the correlation of this, the demand of application that can help tackle certain issue keeps thriving because people tend to seek help from internet, gadgets, application rather than try to find help

services in person or from the expert itself. According to a study, the hesitance of youngsters to seek help from experts for psychological wellness issues is recognized as a challenge to effective early intervention approaches [7].

Therefore, to be more effective, a tempting way using technology could help to give real experience towards the users without the need of doing appointments with the experts or have to face anyone for help. A possible way to do that is by using an application that includes Virtual Reality Exposure Therapy (VRET). Virtual reality was embraced significantly to the entertainment industry and this technology becomes a trend and been used widely for many purposes. This technology has been engaged in the treatment of anxiety disorders, Virtual Reality Exposure Therapy (VRET) is one of the ways of conquering one's fear, trauma or anxiety. VRET on the other hand has truly revolutionized management of anxiety [8]. Colorado Psychologist Dawn Jewell discussed how she helped one of her patients overcome a fear of driving after a traumatic car accident using this technique and over time, the client has felt a reduction in anxiety [9].

There are some application that also comes with VR Technology to tackle stage fright had been created in the market but they only aim to tackle the issue of public speaking in performing speech and presentation. These application will be use as

Corresponding Author: Sabrinaz Yusof, Faculty of Art & Design, Universiti Teknologi MARA (Perak), Malaysia, email: sbrnzyusof@gmail.com

reference module to create another application with the use of VR Technology that specifically aim to tackle the issue of singing performance.

In this research, the goal is to study how eye contact, crowds and noises can affect socially anxious individuals. Next, to identify the use and the effectiveness of using VR Technology as a training tool to tackle stage fright. In order to reach these objectives, other existing studies will be use to support this research.

This research will help not only designers but also for researches that wanted to know more about the application of VR Technology in helping people to overcome stage fright. This research is extended from the previous study on stage fright but specifically focus on singing. Therefore, this research can be conducive for other researches if they want to combine other stage fright issues with this issue such as combining stage fright of presenting with stage fright of singing.

LITERATURE REVIEWS

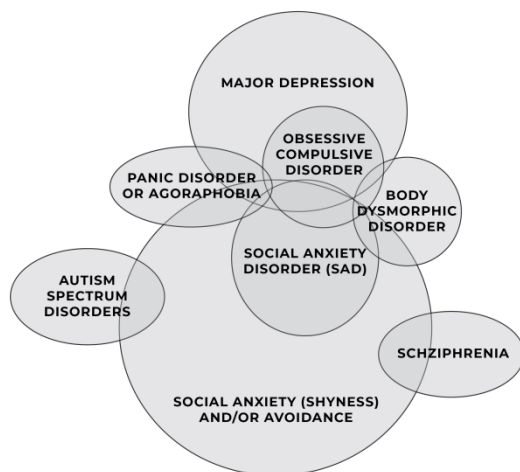


Figure 1: Conditions that often correlate with social anxiety disorder (social phobia) and maybe included in an individual's differential diagnosis with symptoms of social anxiety

Everyone will experience anxiety from time to time. There is no exact specifications of who will experience anxiety and who is not. Social anxiety disorder (SAD) is one of the most widely recognized psychiatric disorders, with a lifetime pervasiveness of 5% to 13% [10][11], and it frequently causes severe distress and disability [12]. Epidemiological studies show that females meet the criteria for social phobia more than the males do. In other hand, clinical studies show that the males have higher prevalence than females [13][14]. Based on the findings, it is undoubted that social anxiety can

interferes with any individuals with different demographic profiles.

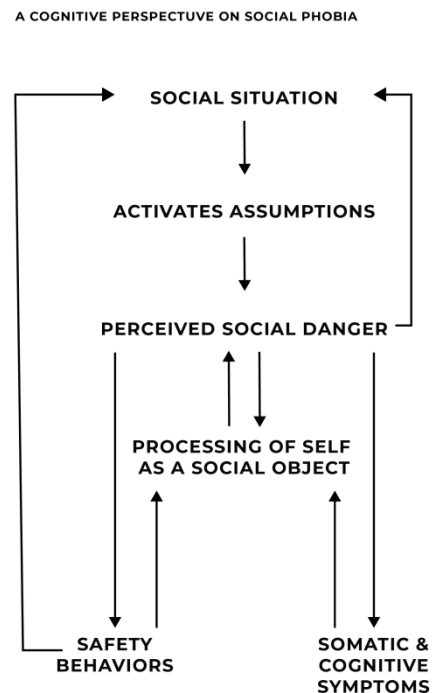


Figure 2: A framework of processes occurring when a social phobics enters into such a feared social situation [15]

Individuals with social anxiety are commonly shy when meeting new acquaintances, quiet in a group of people, and withdrawn in unusual social environments. When there are interaction and communication made, they might or might not express clear evidence of distress such as blushing and avoidance of eye contact [16]. Because of the avoidance of participating in social or performance situations, this could lead to such person being mislabeled as snobs [16]. Low self-esteem and high self-criticism typify individuals with social anxiety [167].

Performance Anxiety

Performance anxiety which is also known as stage fright may affect the learning and success level of the individual's musical aptitude. Performance requirement might trigger this anxiety, fear or constant phobias in an individual [18]. Performance anxiety might affect the level of performance of a performer in two ways: either positive or negative [19]. Actors, singers, ceremonial masters, musicians, entertainers or whomever engaging in performing in front of public or audience normally felt these natural emotions [20].

The symptoms of stage fright are very similar and are well known by physiological, behavioral, and mental effects as it is a type of anxiety [21]. There are emotional and physical signs and symptoms of anxiety that might or might not be expressed by an individual such as eye contact, blushing, sweating, heart palpitations, trembling, difficulty to concentrate and other symptoms [16].

Eye Contact in individuals with Social Anxiety

In the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Social Anxiety Disorders (SAD) is characterized by a persevering fear of "social or performance circumstances in which the individual is presented to unfamiliar individuals or to conceivable examination by others". According to a study, the results suggest that the avoidance of noticeable facial characteristics is a significant marker of socially anxious individual [22]. Eye contact may trigger sentiments of being examined and this eye to eye connection is usually dreaded in individual with SAD [12]. It is stated that individuals with SAD make less eye contact during social conversations, as observed by independent raters in laboratory studies [23].

This avoidance of gaze appears to have practical relevance in SAD, as it prompts loss of social information that may generally counter the disorder's common inclinations that others will be critical and rejecting. Others may misinterpret gaze avoidance by the individual with SAD as an indication of disinterest, diminishing opportunity for positive social interaction [12]. There are direct gaze and averted gaze which have different effects on autonomic arousal and gaze behavior in individuals with SAD, the averted gaze condition was rated less natural than the direct gaze [24]. Psychology gaze direction is suggested that it is probably the most significant social signal. According to the research in Social Psychology that was conducted in 1970's and 1980's, gaze is used to improve turn-taking in conversation, to show intimacy and to train social control [25]. Gaze can give both positive and negative social value and can be interpreted differently by each individuals. It might be interpreted as a friendliness or as a threat [26][27].

Direct gaze is a clear sign of being attended to by another person and there are potential of having a social interaction, it may be a critical threat stimulus for socially anxious individuals prompting to safety behavior, i.e., avoidance of eye contact [24]. As indicated by cognitive scholars, this concern leads socially on anxious individuals to engage in an unpretentious avoidance behaviors to cover their anxiousness and thus avoid negative social outcomes [15]. According to the study that was conducted, it is confirmed that direct gaze is indeed

a threatening stimulus for high socially anxious participants and causes increased excitement [24]. The findings also suggest that gender influences on gaze and face processing, making eye contact with opposite sex is not as pleasant as to do with the same-sex person [24]. Individuals with SAD commonly report fear and avoidance of eye contact, and this gaze anxiety is more severe in individuals with SAD than in healthy individuals [12].

The use of application as a training tool.

The prevalence of social anxiety disorder ranges between 0.45 and 15.6% in adult general populations [28] and between 0.9 and 13.1% in children and adolescents [29]. The level of anxiety can be different from each person. The anxiety can be so strong that the person may, for example, try to avoid socializing with friends or even going to work or to school. Hence, some individual would prefer to seek help from their gadgets rather than to seek help from other people such as the experts.

In a study, it is stated that students tend to multitask while lectures in class by using their gadgets such as laptop or mobile phones to surf the internet and find other source of 'education tools' such as substantial problem-solving activities and graphic-based content to help their studies rather than to have one-on-one session with the lecturer [31]. These students prefer to lean on their gadgets to improve their skills and studies.

The use of Virtual Reality to tackle stage fright

Virtual Reality Technology is a very tempting way to practice and train the users to overcome the nervousness and anxiety when they are doing singing performance. According to a study, virtual reality has been increasingly used for the treatment of mental health. In the article, the effectiveness of VR in psychiatric treatment, with a specific emphasis on anxiety disorders has been highlighted [31].

Virtual Reality is well suited for use in exposure-based treatment for anxiety disorders as it provides the opportunity for a sense of presence and immersion in the feared environment [31]. This therapy helps the patient to comprehend the setting of the traumatic experience just as its effect in the patient's life. It additionally empowers the patient to accomplish a sensible point of view on the traumatic event and its repercussions [32].

This technology aims to align reality and make a world that is both vivid and interactive [33] which can be more efficacy for the user to practice their skills while try to overcome their fear and anxiety to do a performance. Up to this point, several studies

have been conducted regarding the use of VR in the treatment of social phobia [34][35][36][37], all leading to the conclusion that VR immersion seems adequate for such treatments. It is suggested that research on social anxiety can be further developed with advanced technologies such as VR simulations as it allows more interactions and designs which can increase the social interaction and acknowledge behavioral responses [24].

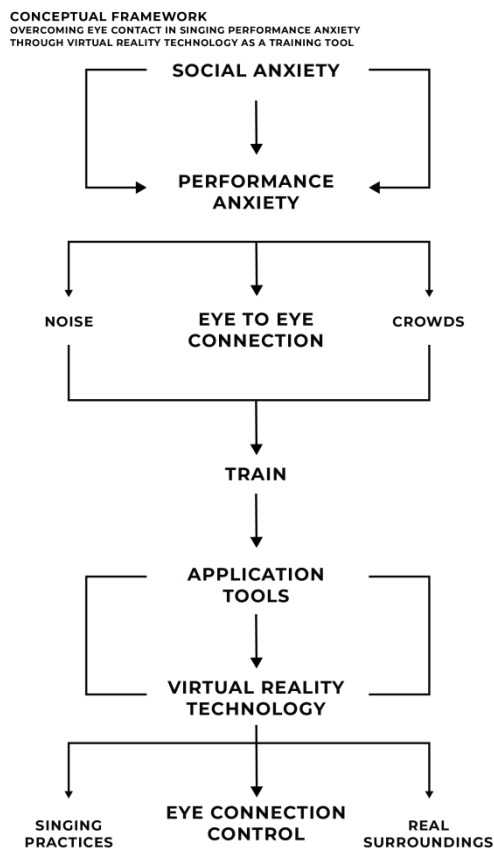


Figure 3: A framework of the process of Virtual Reality Technology in treating and train individuals who have performance anxiety

CONCLUSIONS

Social anxiety had been acknowledged in Malaysia and it might be useful to broaden the understanding to include the anxiety experienced by performers in Malaysia. Steps could be taken to reduce the level of anxiety by producing more training tools to train these performers. Eye to eye connection is very significant to build communication between the performer and audiences. Due to modern lifestyle and the rate of singing competitions and singing reality shows in Malaysia that keep developing,

there is a high possibility that the market opportunity for a handy training application will be growing and demanding.

As eye connection can be metered and designed, researchers are planning to create a training application that includes the use of virtual reality technology to help train performers to conquer their eye contact with the audience and overcome their anxiety. The application will focus on eye connection along with singing practices in real surroundings.

REFERENCES

- [1] American Psychiatric Association. Diagnostic & Statistical Manual For Mental Disorders (DSM) (1994). Fourth Edition. Washington, DC: American Psychiatric Press, Inc, 1994.
- [2] Arlin, C. (2019). Social Anxiety Disorder: Musical Performance Anxiety. Retrieved from: <http://socialanxietydisorder.about.com/od/copingwithsad/a/musicanxiety.html> as on September 2019.
- [3] Arlin, C. (2019). Anxiety Before a Musical Performance: How to Manage Anxiety Before a Musical Performance Retrieved from <http://socialanxietydisorder.about.com/od/copingwithsad/a/musicbefore.htm> as on September 2019.
- [4] Sareen, J., Jacobi, F., Cox, B. J., Belik, S. L., Clara, I., Stein, M. B. (2006). Disability and Poor Quality of Life Associated with Comorbid Anxiety Disorders and Physical Conditions. Archives of Internal Medicine 2006, Vol 166, pp. 2109–2116.
- [5] Stein, M. B., Roy-Byrne, P. P., Craske, M. G. (2005). Functional Impact and Health Utility of Anxiety Disorders In Primary Care Outpatients, Medical Care 2005, Vol. 43, pp 1164–1170.
- [6] Wang, P. S., Lane, M., Olfson, M., Pincus, H. A., Wells, K. B., Kessler, R. C. (2005). Twelve-Month Use of Mental Health Services In The United States: Results From The National Comorbidity Survey Replication. Archives of General Psychiatry 2005, Vol. 62, No. 6, pp. 629–640.
- [7] Rickwood, D. J., Wilson, C. J. (2007). When and How Do Young People Seek Professional Help For Mental Health Problems? The Medical Journal of Australia 2007, Vol. 187, No. 7, pp. S35-S39.
- [8] Repetto, C., Riva G. (2011). From Virtual Reality to Interreality in The Treatment of Anxiety Disorders, Neuropsychiatry 2011, Vol. 1, No. 1, pp. 31-43.

- [9] Jewell D., Limbix VR Therapy. CTV News, 2017.
- [10] Kessler, R. C., Mcgonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S (1994). Lifetime and 12-Month Prevalence of DSM-III-R Psychiatric Disorders In The United States. Results from The National Comorbidity Survey. Archives of General Psychiatry 1994, Vol. 51, No. 1, pp. 8-19.
- [11] Grant, B. F., Hasin, D. S., Blanco, C., Stinson, F. S., Chou, S. P., Goldstein, R. B. (2005). The Epidemiology of Social Anxiety Disorder In The United States: Results from The National Epidemiologic Survey On Alcohol and Related Conditions. The Journal of Clinical Psychiatry 2005, Vol. 66, pp. 1351-1361.
- [12] Schneier, F. R., Thomas, L., Rodebaugh, T. L., Blanco C., Lewin, H., & Michael R. Liebowitz M. R. (2011). Fear and Avoidance of Eye Contact In Social Anxiety Disorder Comprehensive Psychiatry 2011, Vol 52, pp. 81–87.
- [13] Compton, S. N., Nelson, A. H., & March, J. S. (2000). Social Phobia and Separation Anxiety Symptoms In Community and Clinical Samples of Children and Adolescents. Journal of The American Academy of Child and Adolescent Psychiatry, Vol. 39, pp. 1040–1046.
- [14] Rapee, R. M., & Spence, S. H. (2004). The Etiology of Social Phobia: Empirical Evidence and An Initial Model. Clinical Psychology Review, Vol. 24, pp. 737–767.
- [15] Clark, D. M., & Wells, A. (1995). A Cognitive Model of Social Phobia: Diagnosis, Assessment, and Treatment. New York: Guilford Press, pp. 69–93.
- [16] Stein, M. B., & Stein, D. J. (2008). Social Anxiety Disorder Lancet 2008, Vol. 371, Pp. 1115–1125.
- [17] Cox, B. J., Fleet, C., & Stein, M. B. (2004). Self-Criticism and Social Phobia In The Us National Comorbidity Survey. Journal of Affective Disorders 2004, Vol. 82, pp. 227–34.
- [18] van Kemenade, J. F., van Son, M. J., & van Heesch, N. C. (1995). Performance Anxiety Among Professional Musicians In Symphonic Orchestras: a Self-Report Study. Psychological Reports 1995, Vol. 77, pp. 555–562.
- [19] Hamann, D.L. (1982). An Assessment of Anxiety In Instrumental and Vocal Performances, Journal of Research In Music Education, Vol. 30, No. 2, pp. 77–90.
- [20] Cox, W. J., & Kenardy, J. (1993). Performance Anxiety, Social Phobia, and Setting Effects In Instrumental Music Students. Journal of Anxiety Disorder, Vol. 1, pp. 49–60.
- [21] Grindea, C. (1995). Tensions in the Performance of Music London: Kahn & Averill.
- [22] Horley, K., Williams, L. M., Gonsalvez, C., & Gordon, E. (2003). Social Phobics Do Not See Eye to Eye: A Visual Scanpath Study of Emotional Expression Processing. Journal of Anxiety Disorders, Vol. 17, No. 1, pp. 33–44.
- [23] Baker, S. R., & Edelmann, R. J. (2002). Is Social Phobia Related to Lack of Social Skills? Duration of Skill-Related Behaviour and Ratings of Behavioral adequacy. The British Journal of Clinical Psychology 2002, Vol. 41, Pt. 3, pp. 243-257.
- [24] Wieser, M. J., Pauli, P., Weyers, P., Alpers, G. W., & Mühlberger, A. (2009). Is Eye to Eye Contact Really Threatening and Avoided In Social Anxiety? An Eye-Tracking and Psycho-physiology Study. Journal of Anxiety Disorders, Vol. 23, pp. 93–103.
- [25] Kleinke, C. L. (1986). Gaze and Eye Contact: A Research Review. Psychological Bulletin, Vol. 100, pp. 78–100.
- [26] Driver, M. (2002). Exploring Student Perceptions of Group Interaction and Class Satisfaction in the Web-Enhanced Classroom. The Internet and Higher Education, Vol. 5, pp. 35-45.
- [27] Emery, N. J. (2000). The Eyes Have It: The Neuroethology, Function and Evolution of Social Gaze. Neuroscience and Bio-behavioral Reviews 2000, Vol. 24, pp. 581-604.
- [28] Furmark, T. (2002). Social Phobia: Overview of Community Surveys. Acta Psychiatrica Scandinavica, Vol. 105, pp. 84–93.
- [29] Gren-Landell, M., Tillfors, M., Furmark, T., Bohlin, G., andersson, G., & Göran Svedin, C. (2009). Social Phobia In Swedish Adolescents: Prevalence and Gender Differences. Social Psychiatry and Psychiatric Epidemiology, Vol. 44, pp. 1–7.
- [30] Kraushaar, J. M., & Novak, D. C. (2010). Examining The Affects of Student Multitasking with Laptops During The Lecture. Journal of Information Systems Education, Vol. 21(2), pp. 241–251.
- [31] Maples-Keller, J. L., Bunnell, B. E., Kim, S. J., & Rothbaum, B.O. (2017). The Use of Virtual Reality Technology In The Treatment of Anxiety and Other Psychiatric Disorders. Harvard Review of Psychiatry 2017, Vol. 25, pp. 103–113.
- [32] Foa, E. B., Hembree, E. A., & Rothbaum, B. O. (2007). Treatments That Work. Prolonged Exposure Therapy For PTSD: Emotional Processing of

Traumatic Experiences: Therapist Guide. New York, NY, US: Oxford University Press.

[33] Rizzo, A. A., Buckwalter, J. G., & Neumann, U. (1997). Virtual Reality and Cognitive Rehabilitation: a Brief Review of The Future. *Journal of Head Trauma Rehabilitation* 1997, Vol. 12, pp. 1–15.

[34] North, M.M., North, S.M., & Coble, J.R. (1998). Virtual Reality Therapy: An Effective Treatment For The Fear of Public Speaking. *International Journal of Virtual Reality* 1998, Vol. 3, pp. 2–6.

[35] Pertaub, D. P., Slater, M., & Barker, C. (2001). An Experiment On Fear of Public Speaking In Virtual Reality. *Studies in Health Technology and Informatics* 2001, Vol. 81, pp. 372-378.

[36] Pertaub, D. P., Slater, M., & Barker, C. (2002). An Experiment on Public Speaking Anxiety in Response to Three Different Types of Virtual Audience. *Presence Teleoperators & Virtual Environments* Vol. 11(1), pp. 68-78.

[37] Harris, S.R., Kemmerling, R.L., & North, M. M. (2002). Brief Virtual Reality Therapy For Public Speaking Anxiety. *Cyberpsychology and Behavior* 2002; Vol. 5, No. 6, pp. 543-550.