

# CREATING VIRTUAL ENVIRONMENTS FOR CURING ANXIETY DISORDERS

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## Abstract:

Nowadays, we observe an alarming increase in the number of people affected by mental disorders or phobias. These statistics are even more worrying if we take into account the fact that this type of conditions are really difficult to be treated. This project provides solution through the modern approach for treating various phobias. Virtual environments created by virtual reality tools can help to make the treatment of certain type of phobias. Also Virtual Reality Cognitive Behavior Therapy (VRCBT) is an effecting technology with promising results. In recent times Virtual Reality Exposure Therapy (VRET) has become an interesting alternative for the treatment of anxiety disorders and several phobias. This project focuses on preventing Social

Anxiety Disorders (SAD). Anxiety disorders are characterized by apprehension, tension, nervousness, or worry. Social phobia, as the most common anxiety disorder, is the unreasonable fear of social situations and the interaction with other people that can bring on feelings of self-consciousness, judgement, evaluation, and inferiority, and can result in social isolation. Unity is quickly becoming the default tool for virtual reality development due to its ease of use and ability to quickly prototype virtual reality applications with it. The unity application is a complete 3D environment suitable for laying out levels, creating menus, doing animation, writing scripts and organizing projects. Unity creates 3D environments for testing of the phobia

**Key Words:** Virtual reality, Virtual Reality Cognitive Behavior Therapy (VRCBT), Virtual Reality Exposure Therapy (VRET), Social Anxiety Disorders (SAD), Unity environment.

## Introduction:

A phobia is an excessive and irrational fear reaction. Environments, situations, or objects can trigger this reaction. Severe phobias may limit the person's ability to participate in daily activities. They may also cause the person severe anxiety and depression. Phobias can be divided into specific phobias, social anxiety disorder, and agoraphobia. Specific phobias are further divided to include certain animals, natural environment, blood or injury, and particular situations. The most common are fear of spiders, fear of snakes, and fear of heights. Specific phobias may be caused by a negative experience with the object or situation in early childhood. Social phobia is when a person fears a situation due to worries about

others judging them. It is recommended that specific phobias be treated with exposure therapy, in which the person is introduced to the situation or object in question until the fear resolves. Medications are not helpful for specific phobias. Social phobia and agoraphobia may be treated with counseling, medications, or a combination of both. Medications used include antidepressants, benzodiazepines, or beta-blockers. It is recommended that specific phobias be treated with exposure therapy, in which the person is introduced to the situation or object in question until the fear resolves. Medications are not helpful for specific phobias. Social phobia and agoraphobia may be treated with counseling,

medications, or a combination of both. Medications used include antidepressants, benzodiazepines, or beta-blockers.

Specific phobias affect about 6–8% of people in the Western world and 2–4% in Asia, Africa, and Latin America in a given year. Social phobia affects about 7% of people in the United States and 0.5–2.5% of people in the rest of the world. Agoraphobia affects about 1.7% of people. Women are affected by phobias about twice as often as men. The typical onset of a phobia is around 10–17, and rates are lower with increasing age. Those with phobias are more likely to attempt suicide.

### **I. Survey**

There are multiple theories about how phobias develop and likely occur due to a combination of environmental and genetic factors. The degree to whether environment or genetic influences have a more significant role varies by condition, with social anxiety disorder and agoraphobia having around a 50% heritability rate.

#### **A. Vicarious conditioning:**

Vicarious fear acquisition is learning to fear something, not by a subject's own experience of fear, but by watching others, oftentimes a parent (observational learning). For instance, when a child sees a parent reacting fearfully to an animal, the child can also become afraid of the animal. Through observational learning, humans can learn to fear potentially dangerous objects—a reaction observed in other primates

#### **B. Informational/Instructional acquisition:**

Informational/instructional fear acquisition is learning to fear something by getting information. For instance, fearing electrical wire after hearing that touching it causes an electric shock. A conditioned fear response to an object or situation is not always a phobia. There must also be symptoms of impairment and avoidance

#### **C. Therapy:**

Cognitive behavioral therapy (CBT) can be beneficial by allowing the person to challenge

dysfunctional thoughts or beliefs by being mindful of their feelings to recognize that their fear is irrational.

#### **D. Medication:**

Medications are a treatment option often utilized in combination with CBT or if CBT was not tolerated or effective. Medications can help regulate apprehension and fear of a particular fearful object or situation

#### **E. Antidepressants:**

Antidepressant medications such as selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), or monoamine oxidase inhibitors (MAOIs) may be helpful in some cases. SSRIs / SNRIs act on serotonin, a neurotransmitter in the brain

#### **F. Hypnotherapy:**

Hypnotherapy can be used alone and in conjunction with systematic desensitization to treat phobias. Through hypnotherapy, the underlying cause of the phobia may be uncovered. The phobia may be caused by a past event that the person does not remember, a phenomenon known as repression. The mind represses traumatic memories from the conscious mind until the person is ready to deal with them. Hypnotherapy may also eliminate the conditioned responses that occur during different situations. People are first placed into a hypnotic trance, an extremely relaxed state in which the unconscious can be retrieved

### **II. Social Anxiety Disorder:**

Social anxiety disorder — sometimes known as social phobia — is a type of anxiety disorder that causes anxiety or fear in social settings. Someone with this disorder has trouble talking with people, meeting new people, and attending social gatherings. They may feel anxious about others judging or scrutinizing them. They may understand their fears are irrational but feel powerless to overcome them. Social anxiety is different from shyness. Shyness can make socializing, school, and work difficult, but it doesn't disrupt life to the same extent as social

anxiety. Social anxiety is persistent and overwhelming and may affect everyday activities, such as shopping for groceries

Feelings of shyness or discomfort in certain situations aren't necessarily signs of social anxiety disorder, particularly in children

In contrast to everyday nervousness, social anxiety disorder includes fear, anxiety and avoidance that interfere with relationships, daily routines, work, school or other activities.

### III. Proposed model

Cognitive therapy:

Cognitive therapy is a widely accepted form of treatment for most anxiety disorders. It is also thought to be particularly effective in combating disorders where the patient doesn't actually fear a situation but, rather, fears what could result from being in such a situation. The ultimate goal of cognitive therapy is to modify distorted thoughts or misconceptions associated with whatever is being feared; the theory is that modifying these thoughts will decrease anxiety and avoidance of certain situations. For example, patient may have negative thoughts like, "People don't like me" or "I am going to embarrass myself." Cognitive restructuring will help to learn and replace them with more helpful thoughts, such as, "I have some good friends that like to do things with me" or "People have said that I have some good ideas."

Mobile VR headsets: Mobile headsets are shells with lenses into which we place our smartphone. Examples – Google Cardboard, Gear VR etc.

#### UNITY ENGINE

Unity is a multi- platform gaming engine that allows you to create interactive 3D content with ease. A lot of indie developers use Unity for its excellent functionality, high-quality content, and ability to be used for pretty much any type of game. It includes the engine with all features and can (for the most part) be used to make games on every platform

A treatment based on virtual reality for treating height phobia. An environment is designed and developed by using unity engine and it consists of various scenarios like steps with mountains and the tall apartment fetching fruits which can be used for treating the height phobia. The scenarios are composed of various animated 3D scenes that can simulate a fearful event by using which we can treat people and make them get used to that environment. This can be played on android mobile phone by using Google Cardboard VR headset.

Virtual Reality supporting device:

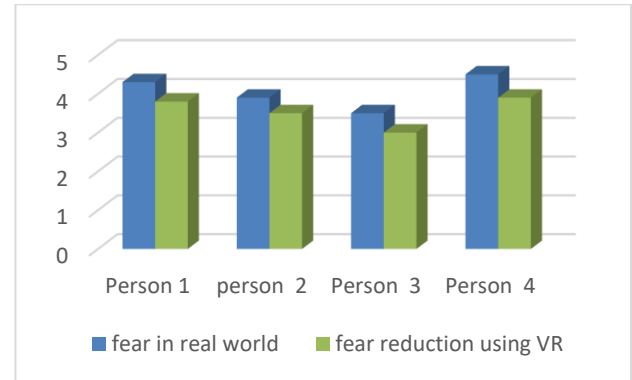
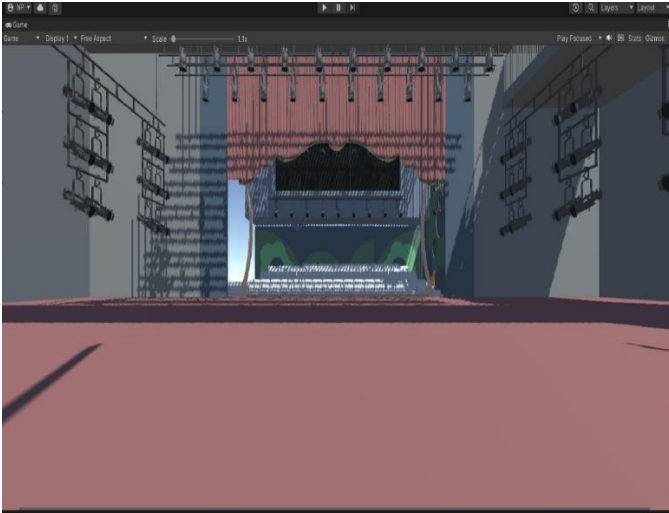


Figure-2.6 Google Cardboard

Google Cardboard is an inexpensive handheld device that powers a virtual reality (VR) experience using almost any smartphone running Cardboard-enabled apps

Creating Virtual Environment:

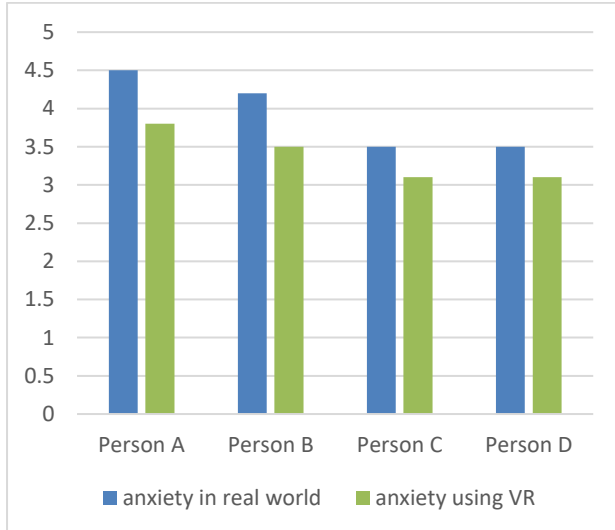
We created the 3D plane using 3D cube object by adding desired sizes in all dimensions. Then, we created the walls on three sides of the plane object with same dimensions and the fourth wall is created with same dimensions as the previous walls and with empty space at the center for elevator by using Pro Builder tool which is installed from Unity package manager.



## IV. RESULTS

### A. Person Anxiety

Phobias can be divided into specific phobias, social anxiety disorder by using the virtual reality gaming environment we can reduce the anxiety of the people. The anxiety will be reduced when they compared to the real world



### B. FEAR REACTION

By using the virtual reality gaming engine we can reduce the fear of any situation and environment. The peoples fear will be reduced among the people by using this technique

## V. CONCLUSION:

Virtual reality therapy can help people in treating phobias by gradually exposing them to their greatest fears. With the help of virtual reality, multiple scenarios can be created to treat people with safer risks. Virtual reality can also allow us to customize environments to exactly what the person strives to overcome. Virtual reality can also provide drug free method of treatment for the patients. Virtual reality can provide more engaging and more authentic experience than normal therapy.

As the world population is growing the phobias are also increasing accordingly. we should implement the new techniques for reducing any kind of phobia by using this virtual reality gaming environment.

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