Virtual Reality : *Future of Physiotherapy*

Dr.Saumya Chaturvedi
School of Computer Science and Engineering
Galgotias University
Greater Noida, India

Ritika Goyal
School of Computer Science and Engineering
Galgotias University
Greater Noida, India

Sudhir Kumar Chaurasiya
School of Computer Science and Engineering
Galgotias University
Greater Noida, India

Deveshdutt V. Tripathi
School of Computer Science and Engineering
Galgotias University
Greater Noida, India

Abstract— **Virtual reality (VR) environments are increasingly being used by neuroscientists to mimic natural events and social interactions. This is due to the advantages over the difficulty of controlling the traditional test set-up in the response to the stimulus to the participant. To ensure the proper development of VR applications, physicians must have a clear understanding of the opportunities and challenges it will present in the implementation of the technology. This review highlights the current state of clinical rehabilitation associated with the development of visual environments that can be used in psychological research and questionnaires as well as specific barriers that researchers face in using VR over traditional settings. Finally, we focus on the visual field, where the benefits and challenges of VR are paramount.**

The recent proliferation of available virtual reality (VR) tools has seen an increase in the use of psychological research. This is due to the many benefits offered by traditional testing tools such as strict environmental control and the opportunity to create environmentally friendly presentations and response processes. At the same time, the high levels of immersion and visual reliability offered by VR do not necessarily evoke the presence or elicit a "real" psychological response. The current paper reviews the current use of VR environments in psychiatric research and discusses researchers' ongoing questions. Finally, we focus on the visual field, where the benefits and challenges of VR are paramount.

Keywords—virtual reality, psychology, physical therapy, unity

I. INTRODUCTION

The proliferation of available virtual reality (VR) tools has seen an increase in the use of psychological testing settings over the past two decades. For the researcher, VR is compelling because of the unlimited possibilities for stimulus and this has led to the spread of VR in areas such as psychotherapy and development, which one might not have expected at first. Once considered "the answer to the question," VR is now firmly established as a test tool.

However, in addition to the many benefits associated with the use of VR, there are still some obstacles and questions that remain. Of course, the equal value of these problems depends entirely on the use case; while presence may not be important in a clinical setting, for example, spatial problems may reduce the accuracy of physical access work. Similarly, in visual acuity tests, the potential difference between the real and the real can be either positive or negative. In this case

paper provides an overview of the benefits and challenges associated with VR in psychology research and

discuss its use in relation to visual acuity testing. VR in Psychology

A. *VR based Therapy vs Traditional ways*

The term VR is often used interchangeably to refer to one of three types of programming: a visual environment presented on a flat screen, a room-based program such as a CAVE, or a headset display. Although all three systems are very different, a common feature in all three is the introduction of stereoscopic depth, which creates the illusion that the viewer sees objects in the visible space. This offers many immediate benefits to the researcher: greater control over the presentation of motivation, variability of response options, and potentially strong environmental resilience. This has led to the increasing use of VR as a research tool in many psychological domains such as psychotherapy, sports psychology, and social media.

The most obvious advantage of VR is the ability to present a stimulant in three dimensions. This offers some advantages depending on the research background. For example, when discussing the possible use of VR in neuropsychological research, Rizzo et al. describe the physical environment as "Skinner's last box," capable of introducing a range of complex regenerative situations that cannot be easily controlled in the real world and enable the evaluation of both cognitive processes (e.g., attention) and functional behavior (e.g., planning and initiating a series of required actions). In clinical research VR is used to create complex environments, such as to illustrate the exposure of a phobic stimulus, where the form and quantity of exposure can be used with complete accuracy. These examples highlight the difference between the introduction of VR stimulus and traditional experimental procedures: in VR the participant responds to the appropriate stimulus while focusing on a large visual space that cannot be controlled. This is different from traditional experimental content where the relevant forces are not controlled but the surrounding environment is usually not

B. *Visual Perception and Cognitive /resopnse Time*

Visual acuity responses can be measured by analyzing the reaction of visual information to the brain and visual perception. The levels of understanding vary according to the time at which subjects receive visual information. The time associated with visual attention and observation of objects and places can be described as a cognitive process. Corresponding studies found the mean relationship between cognitive processes and time, found short-term differences between comprehension and assessment in reading, and assessed differences in visual acuity of visual acuity in image scenes or spatial information related to complex or focused focus over time. The time required for the human brain to detect the stimulus to view and send commands to the body is 0.1 s. At this point, it is impossible to judge the nature of the object by paying attention to it because this is the first stage of human vision. The minimum response time is 0.2 s before the visual information obtained is activated in the brain, and this viewing time applies to both objects and scenes. The minimum response time from visual stimulation to brain response is 0.2 s, and the time it takes for the visual data we received to move the brain is 0.3 s. Visual perception of an object is enhanced by data obtained with a fixed point of approximately 0.3 s. Data analysis at the time of eye movement is necessary for visual analysis due to differences in human vision and mental functioning. The relationship between cognitive processing and time has been scientifically studied and confirmed by many scholars, as described above. Depending on the object and purpose of each level of understanding, there may be differences in the analysis of time. In this study, based on the hypothesis of the difference in visual movement above 0.2 s and 0.3 s, confirmed in a previous study, these times were used as criteria for the analysis of experimental data.

C. *Question of Visual Perception*

Presence is considered important for participants to respond in the same way to VR as they would actually do but it would be a difficult idea to measure properly. Many studies have recorded the user's low experience of presence and the apparent effect it has on engaging in activities in a visible environment. Kober and Neuper have tried to gauge the presence of non-existent presence and put it that it appears to be more attentive to things that affect the visual environment and equally low attention to inappropriate VR. They were able to identify different ERP patterns associated with the existing expansion. In addition, differences were found in the levels of presence proposed by the desktop VR system and the immersive single-wall VR system, which was characterized by the dynamic function of the frontal and peripheral brain regions, measured using EEG.

Immersion is a competent description of the technical capabilities of a VR system that defines the level of detail at which a visual environment can be provided, while the presence describes the user's mental response to the specified area. Different users may experience different levels of presence in the environment at the same level of immersion, depending on different factors such as mood. However, it seems reasonable that the researcher may seek higher levels of immersion where possible, as a highly reliable visual world can produce common answers. Indeed, focus areas appear to be better remembered by participants, evoke deeper emotional responses, increase collaboration, and effectively replicate the anxiety associated with real stress situations. At the same time, the creation of the environment evokes a sense of existence that is completely independent of immersion. Factors such as personality and emotional status also contribute to the presence. In the context of research, authenticity may be determined not by visual integrity but by mental honesty: the degree to which an encouraging presentation evokes the kind of physical or emotional response one can get in real life.

D. *Side Effects of VR*

It is not universally accepted that high immersion is always better than other researchers who report adverse physical and psychological effects from exposure to VR. This is collectively referred to as the virtual reality side effects (VRISE) and usually focuses on the general feeling of malaise or perhaps motion sickness experienced by users. The result was initially believed to be due to limitations in early VR technology when there was often a lack of action between participants' movements and reflexive displays that led to a disconnect between the user's understanding and user systems. However, while technological advances have overcome this initial limit, VRISE remains a problem. Although common to most VR users, these side effects vary from person to person and, as a result, it is difficult to lay down what immersion features are considered. While some studies suggest that many immersed HMDs are linked to higher levels of illness in participants, others show that there is little difference between the side effects of using a desktop computer and a VR display on the head. No matter, it seems that these symptoms are usually mild and rapidly subsiding and there is some evidence that users may be able to adapt to repeated exposure. Although not all that is common in literature, researchers should also consider the potential negative effects of VR psychology, depending on the topic under consideration. For example, Aardema. found that users who had previously been exposed to the immersive visual environment had shown an increase in dissociative experiences including a slight sense of reality of purpose as a result of exposure to VR, over time. found that VR immersion led to physical dissatisfaction with users. As VR environments become more realistic and potentially more complex situations, another potential conflict may arise in what He and Bailenson call the Proteus effect, in which users of the VR environment change their behavior depending on how they are represented in the physical world, though at present this effect seems limited to visual-study studies. third-party avatar, in contrast to the first-person perspective.

II. USE OF VR IN PERCEPTION RESEARCH

The Effect of Space and Movement in VR on Vision

Numerous studies have identified the difference between grade judgments and cognitive actions as access. In addition, it has been found that in VR, users tend to underestimate the size and range of objects. Bingham. give a useful explanation: what we see in VR as a reality is actually a series of images controlled by the display. While the user's view is focused on a series of images that make up the visual object, the object itself appears in a different place. As a result, when the user looks at an object, there is a disconnect between the location (fixed viewing distance between the user and the display) and the merger (the user's eyes meet the object), two processes that are inseparably connected to viewing objects. Some studies have suggested that this effect is a problem of re-visualizing the action, while others suggest that moving to a visible area with a continuous visual response is necessary to create a visual space redemption.

Mast and Oman have used visual space to explore visual deception, a situation reported by astronauts in which the ownership of space is changed due to the rotation of the entire visible field. The authors created an immersion space (e.g., a room containing a variety of items) with vague viewing features with the intention that, due to the placement of objects in the room, it would appear to be well-aimed even if the room was rotated 90 °. Investigators were then able to circle the entire viewing area and examine the effects on sight - something that would have been almost impossible to duplicate in the visual field. Bruder introduced the use of VR to investigate how the illusion of visual movement is perceived by the viewer. The authors used the flow of light- the change of light pattern in the viewer's eyes as they traveled in nature - and found that the illusion of optic flow could significantly affect the movement judgment of users.

A. Control Over The Visual Scene

Virtual reality technology overcomes a certain number of traditional methods of testing by enabling direct control of the local distribution of light in the visible area and the distance and location of the sensor. In the real world, lumbering elephants are exposed by the aggression of speeding midgets. However, in reality it is possible to manage distances between places while simultaneously maintaining the same photometric relationship (i.e., the amount of light that reaches the viewer's eyes remains constant). In addition, by tricking things into a three-dimensional object, you may be able to test the positive and negative parallax effects that are not possible using a two-dimensional screen. In addition, VR technology allows full control of the amount of light that reaches the eyes of viewers as well as the layout of locations in the visible area.

This level of control is especially helpful when assessing color perception and other visual factors such as color contrast. Color variation refers to a state in which it appears that two areas with the same spectral structure have a different color when placed in different chromatic domains. It has been shown that this phenomenon depends on the complexity of understanding, the collection of material objects into the whole material. Although this analogy has been the subject of centuries of debate between scientists and interested philosophers since Aristotle's time, there is still no consensus as to why this happened as some authors claim it took place at a higher level of observation and others say that this practice was due to inferior features. In an attempt to separate these ideas, Soranzo. read this item in VR and also provided evidence that a color-coded object can be attributed to the concise effect of features that occur in both the low and low aspect of the viewing process.

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III. Required Tools And Analysis

A. Visual Stimuli

The test sections are as follows. First, to create visual aids, a 360-digit camera was installed on the road from the entrance to the intersection at Star Hall Library. Many of the images were recorded, and visuals were selected based on the density, location, and visibility. During the initial investigation, it was found that the sign, path, and surrounding spaces were used to identify the junction of the test space road. Getting location details, the destination name of the sign and the direction of the arrow were found to be confusing factors in choosing the position of the space. Second, with hypocrisy involving two participants, the viewing and visibility of the participants was confirmed while 360 embedded images were uploaded to a VR-based HMD device (SMI-HTC vive). Third, by analyzing the safety measures introduced to participants in the past, a pre-explanation was added to improve participants' understanding of the test. Fourth, in the trial (with a total of 23 participants - 10 males and 13 females), each participant wore an HMD headset and visualized objects while responding to a conversation conducted by the experimenter.

A total of four visual elements were presented sequentially and below the test time limit. The visual processes of clarity and understanding according to the area of interest in this study were analyzed using a single observational stimulus. In the illustrated renovation shown in [Figure 1] a, the participant realized the environment by 30 s at the entrance to the test space. The trial explained to participants the purpose of the test and the VR environment and asked participants to be aware of the visual details of the sign first. Two different types of visual cues were used to obtain SSVEP responses: PRCS and GSS. PRCS is a traditional visual enhancement, widely used to detect SSVEP responses in LCD monitoring areas; this stimulus presents two checkerboard patterns with a 180 ° section difference (Figure 1 (a)). GSS is a new visual enhancement that changes the brightness and volume of SSVEP responses. This recommendation was based on previous studies, which reported that motional mutations could replicate VEP responses (commonly referred to as a severity of the excision or SSMVEP) (Figure 1 (a)). These programs were introduced in the VR environment using HMD for the HTC VIVE ™ VR program (HTC Co, Ltd., Xindian District, New Taipei City, Taiwan). Both of these visual cues were adjusted to obtain four-frequency SSVEP responses, i.e., 6, 7.5, 9, and 10 Hz. These frequencies were determined by considering the refresh rate of the supply device (90 Hz), which is the repetitive number of each of the four target waves. In the offline test, the

PRCS visible angle was set at 14 °, while that of the GSS ranged between 8 ° and 16 °. In online experiments, the PRCS optical angle was reduced to 6 ° and the GSS range was between 4 ° and 8 ° to ensure the possibility of visual effects in a VR environment where stimulants cannot be used normally. . Note that according to previous reports, objects with angles greater than 3.8 ° would display similar levels of SSVEP responses

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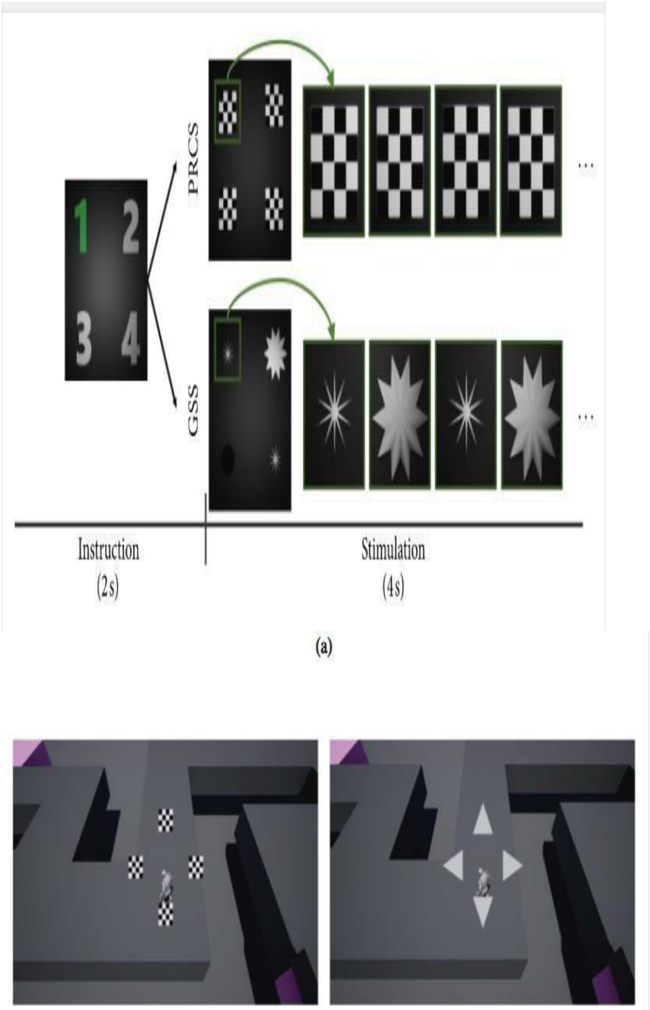

Fig 1. Offline Experiments(a) Total time line for one trial for offline trials. For each trial, after the 2 s tutorial period to inform participants of the location of the targeted visual object, four visual elements, each of which was PRCS or GSS, presented 4 s. (b) Screenshots of online testing. The photo on the left was taken during the PRCS lease, while the photo on the right was taken during the GSS lease. The human avatar needed to move in a selected direction (e.g., on the left side of both numbers).

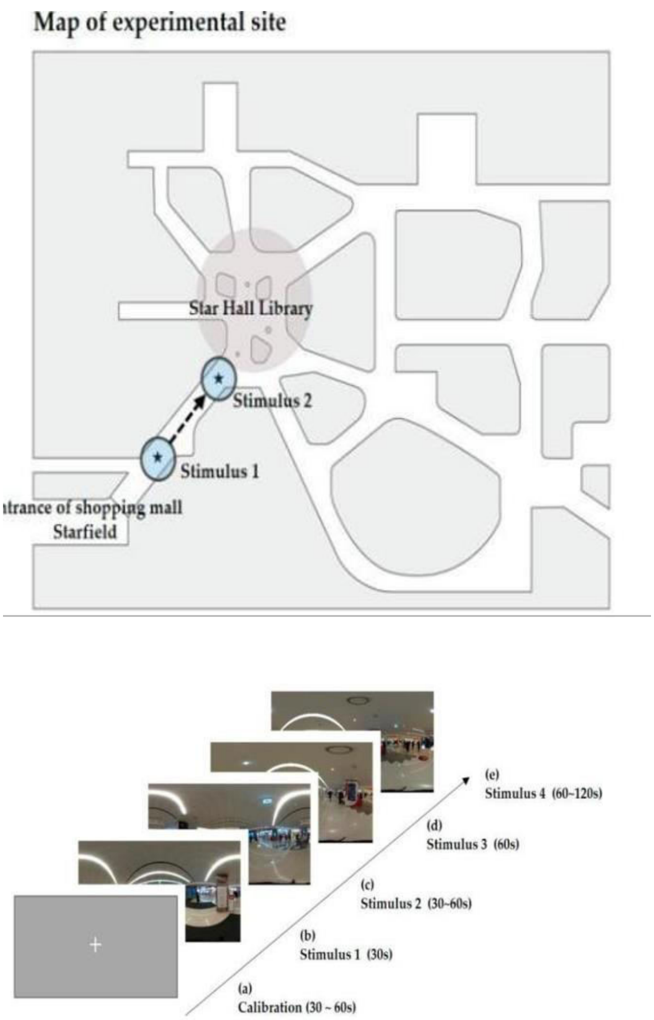

Fig 2. Stages in Visual Stimulus

Visual enhancement of test processes with a test site map. The dynamic images in this drawing are flat, 360-degree images to show the experimental setup. (a) As a precautionary measure to focus on extracting visual data for each subject, the subjects conducted a data-focused 360-degree data test. Figures (b) and (c) show an examination of the surrounding environmental topics, while the researcher describes the visual aspects of the study, including the signs and crossings within the area, using the "introduction of the statement of intent". (d) As a precautionary measure, participants look at the indicators and search the space according to the statement of purpose. (e) Investigators consulted with participants on how they understood the space during the assessment.

B. Experiment Procedure and Participants

VR testing was conducted over two days from 10 January 2019 to 11 January 2019, and participants were 24 undergraduate or graduate students. All participants had visual acuity or adjusted visual acuity points of 0.5 or higher, with an average age of 24.8 years (standard deviation: ± 1.89).

The first test was performed to confirm the test setting. In the first trial, participants were asked to follow simple instructions after a focus adjustment, which allowed them to familiarize themselves with the immersive VR

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environment before entering the main test. Respondents perceived visual stimulation with a 60 s free, and as they had in the first tests, they assessed the visual area by freely turning their heads and bodies at a distance allowed for HMD equipment. The trial completed the first trial after monitoring participants' behavior in real time. After the completion of the initial study, participants underwent the main study, and the time required for each participant to complete it was different; participants took at least four minutes and a length of 5 minutes and 40 s. In terms of data collection performance, the viewing details of the last 11 participants were selected and analyzed.

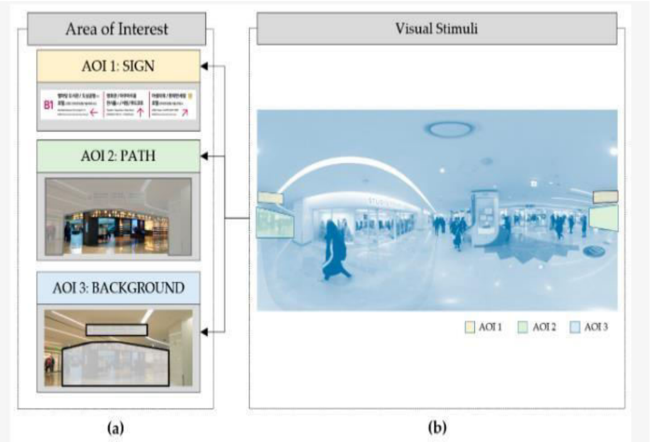


Fig 3. Areas of interest (AOIs) placed in visual conditions. (a) By setting the regions of interest to the visual, participatory observation data created during the search for directions based on the location details of the test were extracted. In visual revision, the unmarked area and "path" are set as background. (b) Visual motivator displayed when a participant wears HMD and explores the VR environment.

IV. Complete Work Plan

A. *Problem and Formulation*

The reality is that reality is not limited to entertainment. We have used VR in physical therapy for people with severe anxiety disorders, who are struggling to meet their daily needs in the gym. Imagine going to the gym to take part in the Tour de France and the race against the world's best cyclists is still difficult to deal with. But technology does not always have the human perspective - the term used to describe how we take knowledge from the world and build understanding in it. Our true vision is what underpins our decisions and in particular determines our sense of place. Clearly, the design of the interoperability program goes beyond hardware and software; people must be included, too.

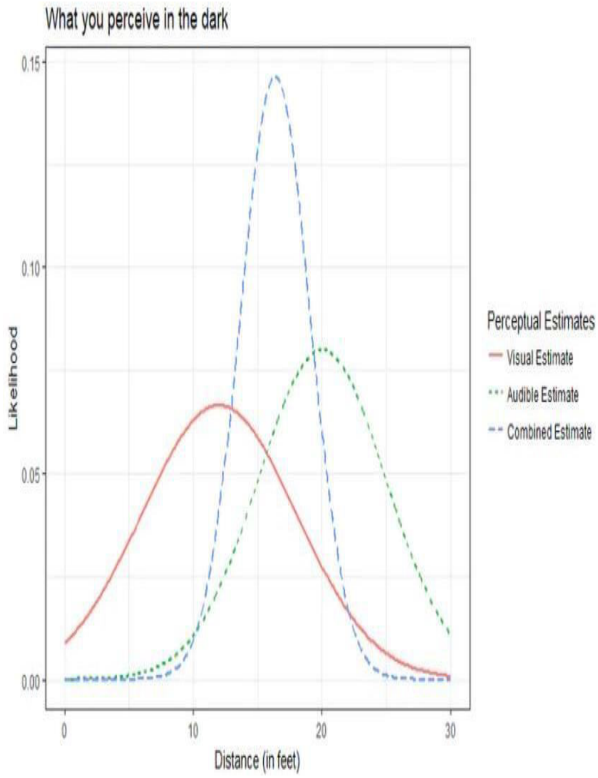
It is a challenge to deal with the problem of designing VR programs that actually transport people to a new world with an acceptable sense of existence. As the VR experience becomes more complex, it becomes difficult to quantify the contribution each experience item makes to someone's vision within the VR headset.

When we watch a 360-degree film in VR, for example, how can we see that a computer-generated image (CGI) contributes more or less to movie entertainment than a 360-degree audio technology embedded in the experience? We need a way to study VR in a way to slow down, remove the clutter before adding a piece of each piece to see the effects on a person's sense of presence.

One theory combines computer and psychology. The limitation of great opportunities explains how we integrate the information we receive into all our senses, putting it together to appreciate our understanding of nature. In a very simple way, it says that we combine sensory information in the right way; each feeling provides a natural balance but has a sound.

B. *Noisy Signal Problem*

Imagine a man with a beautiful ear at night on a peaceful world trail. They see a confused shadow in the distance and hear a different sound of footsteps approaching them. But that person cannot be sure of what they see because of the "noise" in the signal (dark). Instead, they rely on hearing, because a quiet environment means that the sound in this example is a reliable signal. This situation is illustrated in the picture below, [Figure 2] showing how the proportions in the eyes of the people and the ears combine to give a good measure somewhere in the middle..



The blue curve shows a compromise of the auditable and visual senses. It is also taller, which means it corresponds to a higher likelihood in its estimate of what can be perceived in the dark.

Fig 4. Noisy signal

C. *The Big Idea*

This has many applications in VR. Our latest work has used this method to solve the problem of how people measure distances when using virtual headsets. A driving simulator to teach people how to drive can lead them to press distances in VR, providing inappropriate use of technology in such a learning environment where dangerous objects are used in the world.

Understanding how people integrate information from their minds is critical to the long-term success of VR, because it is not just visual. The high level of possibilities help to show how effectively the VR system needs to deliver its multi-sensory environment. Better visual experience will lead to a immersed VR experience.

Simply put, it is not a matter of separating each signal from the sound; it's about taking all the signals with the sound to give the most likely results of real reality working for apps beyond the world of entertainment.

D. Tools Used For Implementation

For this we will use a cohesive software that creates a kind of visual 3D application game that helps those traumatized, anxious people and helps them to be able to physically and daily activities in a quiet environment.

Fig 5. Unity Software Logo

As we know that hard exercise reduces the pressure in our body so we will make the three level of our exercise training in which we will provide the Basic – Medium – Hard

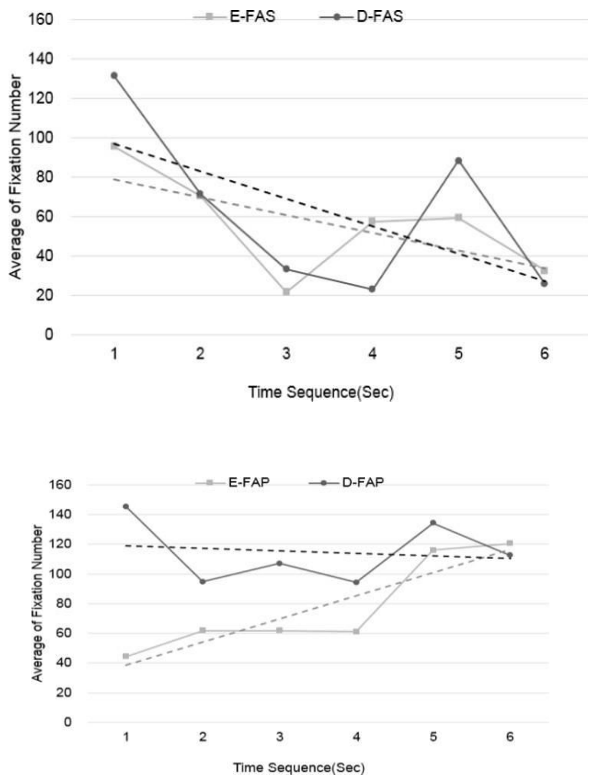


Fig 6. Average fixation periods for AOIs The average time graph which shows the mode and work we are going to provide later on the game

In the training it depends upon the person which type training he want to do or not if he wants to start with the normal exercise he should start with that also otherwise he can just make start with the hard exercise. Every one rep he will see his result and then the pressure count means how much stress he has lose in the training time.

Interactive Feedforward – Performance improvement by competing against a self model representing the previously achieved performance.

E. Challenges Provided

1. Base Line B (Basic Mode) - We will construct a self-model by recording a player during the HIIT exergame.
2. Equal Challenge E (Medium Mode) - Player compete against self-model representing their previous performance as per interactive feedforward.
3. Harder Challenge H (Hard Mode) - Complete against the same self-model, but with increased bike resistance.

F. Average Gaze Data For Understanding Spatial Information

Time series analysis was performed to analyze the survey data for the acquisition of location information. To analyze the process of visual information, time was divided into six consecutive periods of ten seconds. To extract the AOI setof visual visual data, the number of correction details obtained in each category was identified as well as the AOI participants' observations and information received over time. In the discussion conducted in the final phase of the trial, participants answered questions about the clarity and recognition of the five-point road selection process. According to their answers, they were divided into two groups. Dividing the group according to the level of spatial recognition recognition allowed the researchers to analyze the correlation between the variables of each group's changes in the perception of spatial cognition and the movement of visual cues according to time series analysis. according to two groups. (a) The adjustment between AOI methods in the "easy" group (E-FAP) and the "difficult" group (D-FAP); moderate correction decreased gradually along the "group" path "but increased for the" hard "group. and D-FAS.

G. Parsing gaze data to fixations

We rely on a high-speed algorithm to identify alignments and saccades from eye movements. Because our data are located in the unit sphere we cannot rely on the euclidean range, as it would mean drawing a line between two points per sphere; however as the sample rate increases the viewing points are closer together and the euclidean distance becomes a good estimate. Despite this last statement, it defines velocity as an orthodromic range (e.g. large circle distance, equation 1 showing the Haversine variant used) between two view samples separated by their time difference. The 1D velocity signal is smooth with a gaussian filter (σ = 1 sample). Then check the samples with velocities below 80◦ / sec. the limit is divided as adjustment. As a background check, in the second step, we chose to remove the fix that lasts less than 80ms. See Table 1 for the number of adjustments identified for each video As result.

$$\Delta\sigma = 2\arcsin\sqrt{\sin^2\left(\frac{\Delta\phi}{2}\right) + \cos\phi_1 \cdot \cos\phi_2 \cdot \sin^2\left(\frac{\Delta\lambda}{2}\right)}$$

Where $\Delta\sigma$ is the distance in angle between two points on the sphere, $\Delta\phi$ the difference in longitudes, $\Delta\lambda$ the difference in latitude, $\phi 1$ and $\phi 2$ longitudes of the two points compared.

H. Saliency maps

Saliency maps are calculated by strengthening each adjustment or trajectory points (for all viewers of the same video) with Gaussian. Sigma 2ma is selected for head and eye data and 11.5◦ for head data only. Previous accounts for eye-tracker accuracy and advanced visibility, this is ultimately appropriate for the normal distance between the preparation areas and the central viewing area observed in our data. isotropic back-projected to a sphere. The kernel shown in Kent distribution can also be used but we regard Gaussiaacceptable
case.

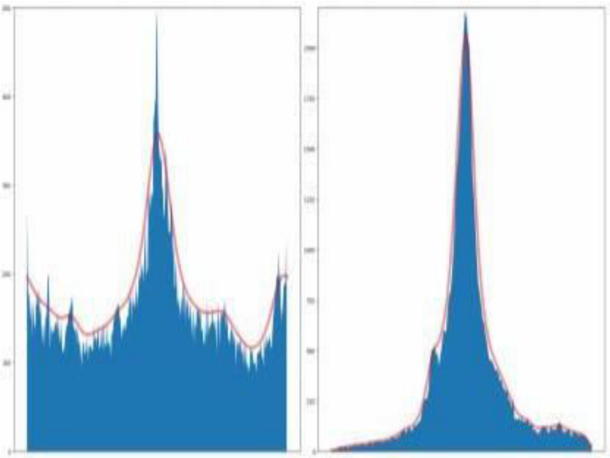


Fig 7.Number of fixations (blue) by longitudes (left, -180◦ to 180◦) and latitudes (right, 0◦ to 180◦). PDF curves (red) are fitted with a von Mises kernel for longitudes and a Gaussian kernel for latitudes.

I. Analysis of the Perception and Understanding of Spatia Information and Cognitive Difference

The data extracted from the "easy" and "difficult" visual assessments were divided into the perception and comprehension of spatial information through the analysis of AOIs. were analyzed to be higher in the "signal" (E-200-FAS), which was frequently sought after in all areas of the AOIs.

However, the perceptions of the "hard" group were analyzed to be regular or abnormal in terms of the "signal" visualization rate (D-200-FAS) related to AOIs locations and in chronological order. In the process of understanding the space of 300 ms, the E-FAS team continued to seek to understand the space, as visibility was seen in the "sign" area at this time. However, the "difficult" group was seen to remain focused on the "path", without looking at the "mark" in the first step. Revealing the response to the difficulties encountered in the local knowledge, differences were observed between the E-FAS group and the D-FAP group in the pattern of the experimental method observed in all assessment phases.

J. Implemetation using the unity Software

A) There is so much to save if we are going to build another place! Because our senses are so many and complex, we will discuss a simple example - another place we can see with our own eyes. We can still make this place believable because our brains tend to rely more on vision than any other concept. Let's assume that what we create is something like a Martian dun. How do we get started with this simple photo and make our friend see it as a place to immerse himself.

Fig 8. For starters, our friend needs to be able to experience this two-dimensional image of a Martian dune as though it were as real as the three-dimensional space you are in right now. To make this happen, we will need to begin by building something into our environment called stereoscopic vision.

B) Binocular vision means that our left and right eyes see things with a different view, because they are located on different sides of the face. This means that our brain has to process information from both sides. This process is called stereopsis. Visual stereo allows our brain to let us know if something is near or far. For our friend, stereopsis is the one that will create the impression that you are in the picture instead of just looking at us.

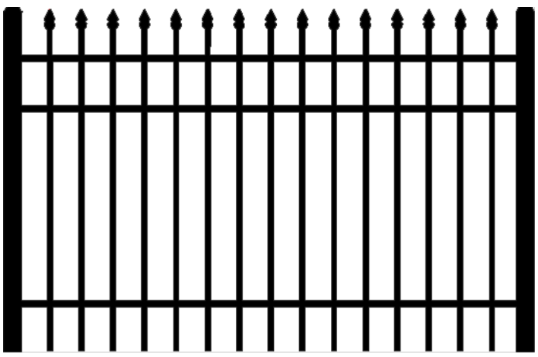


Fig 9.In a simple photograph, we need multiple pictures to show the different angles of a scene. Virtual reality allows us to merge these single environments, allowing us to move around to

appreciate different vantage points, and to perceive three-dimensional depth just like in real life.

IMPORTING:

You can import non-Unity assets into your Unity Assets folder under your Project, or copy them to that folder. With most common formats, you can save your source file directly to your Project Assets folder and Unity can read it. Unity also finds when you save new changes to a file and re-import files when needed. When you create a Unity Project, you create a folder (named after your Project) containing the following subfolders: Project by downloading the file directly to

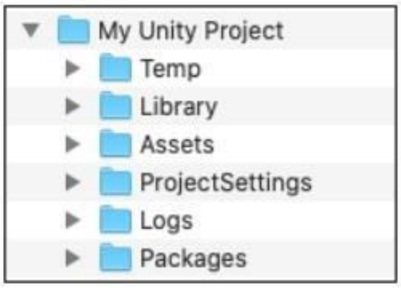


Fig 10.The basic file structure of a Unity Project

THE FRESH PROJECT:

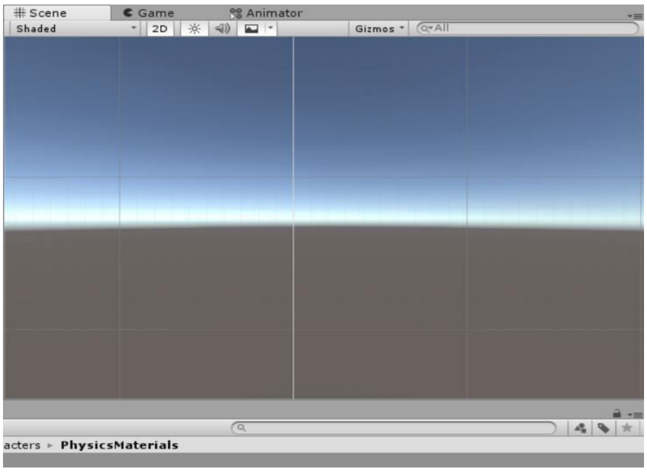


Fig 11. You should now have a fresh project that looks like this!.

INSPECTOR:

This light illuminates our scene from the opposite angle of our main light, giving the backside of the ball a nice hue. To change the color of the light, click on the area next to the color property.Feel free to adjust any of these values as you see fit, or change the fill color. Light the scene the way you want!

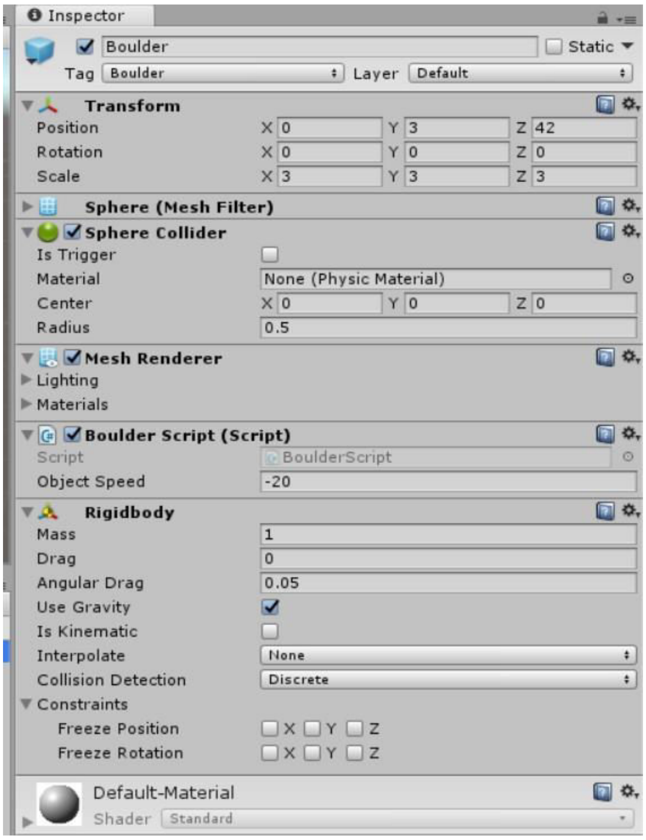


*Fig 12.PLAYER CONTROL SCRIPT: When constructing variables, instead of using "var" we specify the JavaScript variable type and also, you've probably seen 'whole numbers', 'strings', and 'Booleans'. In JavaScript, you do not need to specify a variable type, but the functions are specific to the variable types. For example, you can't do "hi" * "bye" but you can do 7 * 8.*

Imported Object

PlayerControl

```
using UnityEngine;
using System.Collections;

namespace UnityStandardAssets.Characters.ThirdPerson
{

        public class PlayerControl : MonoBehaviour {
                public GameControlScript control;
                CharacterController controller;
                bool isGrounded= false;
                public float speed = 6.0f;
                public float jumpSpeed = 8.0f;
                public float gravity = 20.0f;
                private Vector3 moveDirection = Vector3.zero;

                //start
                void Start () {
                        controller =
GetComponent<CharacterController>();
                }

                // Update is called once per frame
                void Update (){

                        if (controller.isGrounded) {

                                float h =
Input.GetAxis("Horizontal");
                                Animator anim =
GetComponent<Animator>();
                                anim.SetFloat ("Speed", h);
                                Debug.Log(h);

GetComponent<Animation>().Play("run");        //play "run" animation
```

WORKING WITH PLAY MODE:

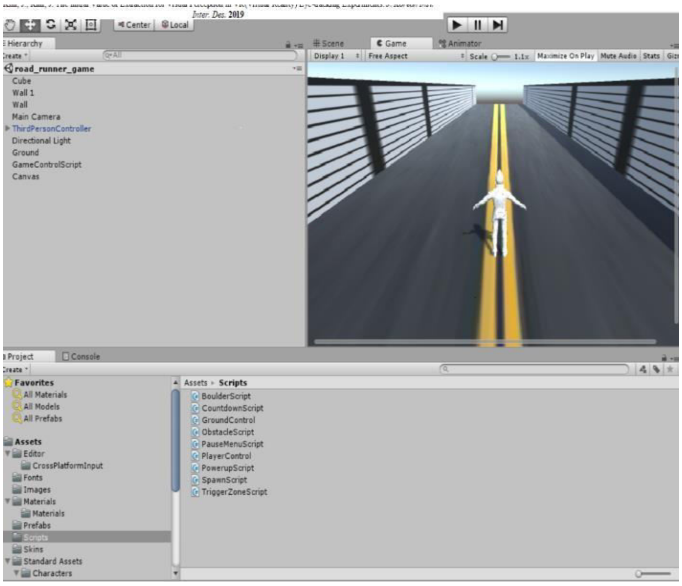
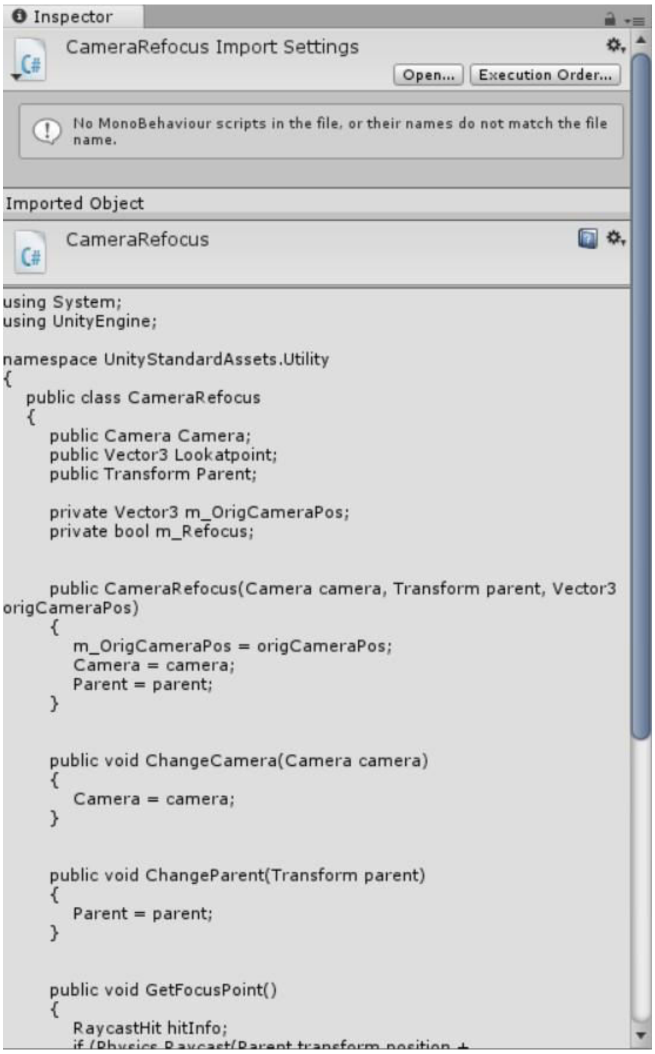


Fig 14. Basic Mode B Enter play mode and test. You should now be able to move character the around the plane!

CAMREA REFOCUSING:


Inspector

CameraRefocus Import Settings

Open... Execution Order...

No MonoBehaviour scripts in the file, or their names do not match the file name.

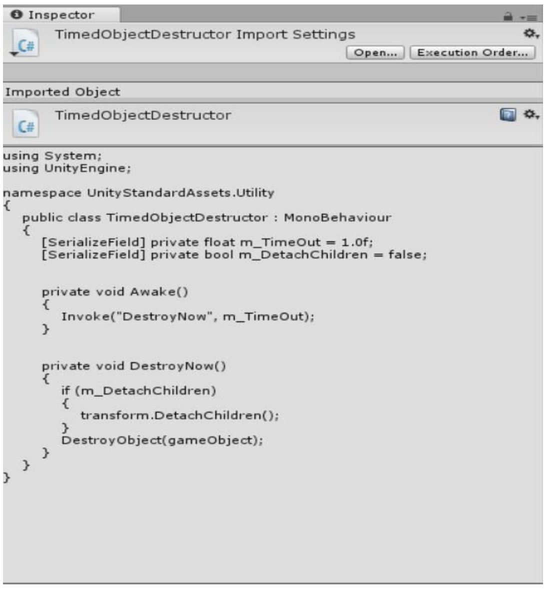
Imported Object

CameraRefocus

```
using System;
using UnityEngine;

namespace UnityStandardAssets.Utility
{
    public class CameraRefocus
    {
        public Camera Camera;
        public Vector3 Lookatpoint;
        public Transform Parent;

        private Vector3 m_OrigCameraPos;
        private bool m_Refocus;


        public CameraRefocus(Camera camera, Transform parent, Vector3
origCameraPos)
        {
            m_OrigCameraPos = origCameraPos;
            Camera = camera;
            Parent = parent;
        }


        public void ChangeCamera(Camera camera)
        {
            Camera = camera;
        }


        public void ChangeParent(Transform parent)
        {
            Parent = parent;
        }


        public void GetFocusPoint()
        {
            RaycastHit hitInfo;
            if (Physics.Raycast(Parent.transform.position +
```

Fig 15. Enter play mode and test. Your camera should follow the player, so the character will remain in the center of the screen!

ADDING SOME TIME DESTRUCTOR:


Inspector

TimedObjectDestructor Import Settings

Open... Execution Order...

Imported Object

TimedObjectDestructor

```
using System;
using UnityEngine;

namespace UnityStandardAssets.Utility
{
    public class TimedObjectDestructor : MonoBehaviour
    {
        [SerializeField] private float m_TimeOut = 1.0f;
        [SerializeField] private bool m_DetachChildren = false;


        private void Awake()
        {
            Invoke("DestroyNow", m_TimeOut);
        }


        private void DestroyNow()
        {
            if (m_DetachChildren)
            {
                transform.DetachChildren();
            }
            DestroyObject(gameObject);
        }
    }
}
```

Fig 16.Adding some time destructor help the character to complete the game in the given time.

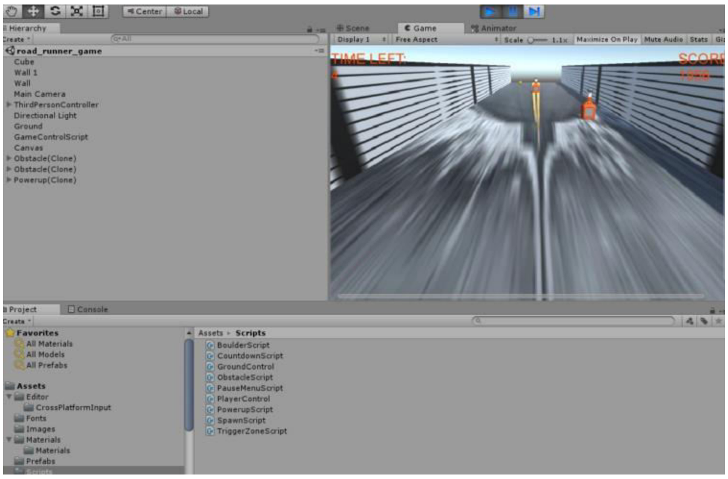


Fig 17.Added the time destructor now the character is moving with the given time and the inspector is all set to move.

GAME CONTROLLER SCRIPT:

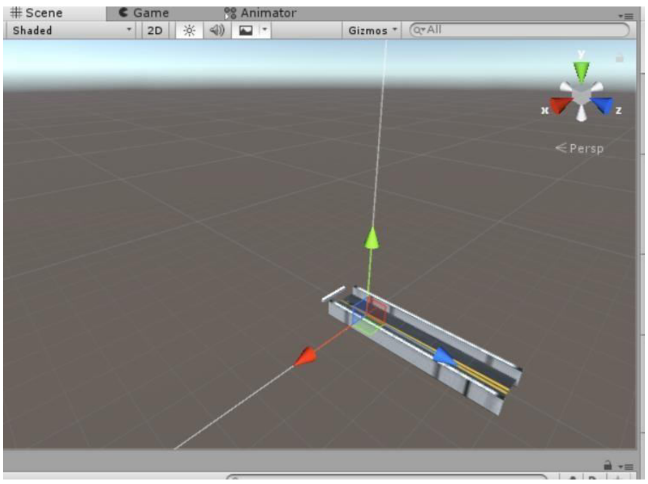


Fig 18.This is the game control script. For this we have to open the player control panel for editing and add some code under this for the all over control in ground or camera

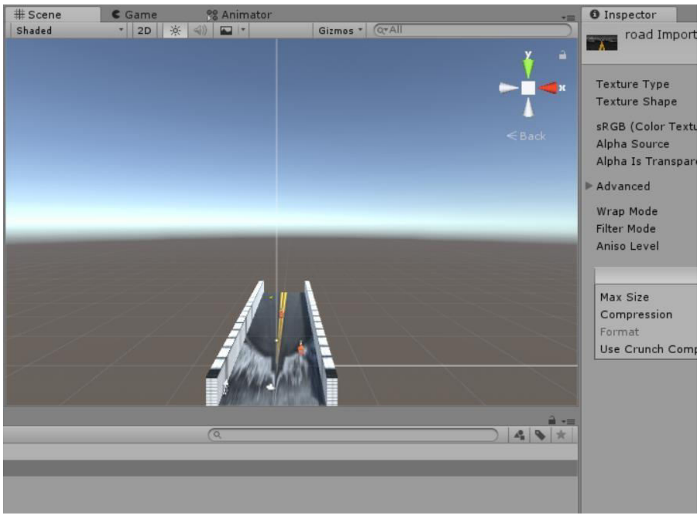


Fig 19. A 2D scene of last and final touch of the game.

FINAL GAME:

This the final conclusion of the game.

Fig 20.Congratulations! You have completed your 3D game

RESULT

After considering all of the above, one question remains: To what extent do we personally experience the realities of life in the real world? In other words, can we make our results found in VR as normal human (viewing) behavior? The development of real-world similarities compared to standard screen tests, often with fixed head conditions, seems to justify the use of VR. However, there are a few differences that we need to keep in mind when interpreting our results. First, the screens have a higher resolution in the center compared to the outer parts. This influences the relationship between the movement of the head and the eyes because the subject needs to move the head to see something that is of interest in high resolution in VR. A limited view field for HMDs can contribute to this result. In terms of visual behavior, one of the major differences between the real world and the real world is vergence-accommodation-conflict. Since these two screens always have the same distance from the eyes, our lenses do not need to move the focus to look at objects at different depths. Since all information is provided with a single focus plane instead of landing from as many focused aircraft as in the real world, there is little in-depth information transmitted. The lack of depth of blur-like field indicators leads to different perceptions of material size (Eggleston et al., 1996). Currently there are several solutions to this problem being developed in VR including bright field rendering or border blurring through optical tracking. However, we should consider, that the same restrictions apply to standard monitoring setups, i.e. it is not a specific VR problem. However, a different presentation of the visible world in the title should be considered as it may affect the performance of the view. Navigating nature in a large visible area is difficult to achieve because it may require extensive footprints, which are built 18, but today it is still difficult and expensive to find in the consumer markets. Another solution would be to install a large tracking area as a visible area, but this requires a lot of space and cable solution such as VR backpack19 or wireless information transmission20. There is a lot of development going on in these areas, which is why we expect new and affordable solutions that will emerge in the near future. There are other solutions available that include hand tracking with infrared cameras or systems that use gloves, which can also provide a certain power response. Whether these differences in the real world affect the results, depends largely on the question of research, but all should be taken into account when establishing test and evaluation of results.

CONCLUSION

The proliferation of available virtual reality (VR) tools has seen an increase in the use of psychological testing settings over the past two decades. In this review, we have described the advantages and disadvantages of these technologies in psychological research, compared to many traditional tools. The advantages of VR is that it allows greater control of the presentation of the stimulus; variety of response options; the presentation of dynamics on three sides; the construction of complex conditions; multi-level performance and integration of multimodal sensor input that may allow for sound, haptic, olfactory, and simultaneous sensory movements in a given environment of drawings or objects; the opportunity for participants to respond in a more environmentally friendly manner; direct and independent manipulation of geometric and photometric relationships between objects; an opportunity to explore participants ’complex behavior, such as avoidance; and the study of ineffective, dangerous, or morally questionable situations that can be created in real life. Further, we suggest that while these technologies have great potential to aid new discoveries in psychology, there are some variations that need to be considered by the researcher including the concept of presence - immersion alone is not enough to make a participant feel if the material is "real" and responds appropriately; physical and psychological effects from exposure to VR (virtual reality effects). In addition, we have considered the implications of using VR in assessing visual perception and how the comparable differences in color perception, contrast, space and mobility, compared to real life, can be worrying if the goal is to focus on visual perception in the physical world or profit when trying to create "impossible situations." you know that there are huge variations in the size and cost of different equipment and in some cases it may work in some settings due to their technical difficulties. Until recently, the price of immersed HMDs with a good tracker system may allow. However, HMDs are now cheaper and more easily available, in real caves, for example, it is relatively expensive and requires a lot of installation space. by useful.

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