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Implanting and Altering Beliefs in Children using Immersive Technologies

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Abstract: In this evolving era of augmented reality and virtual reality the world has given us the space for three dimensional and four-dimensional view of objects. Similarly, AR is providing clear cut visuals that are so immersive that one can work more productively. One of the areas where this technology can be applied is psychology and changing behavioral patterns. The main purpose of this paper is to use this technology to stimulate the human mind and change his or her perception. Our mind has trained a perception for so long that we cannot find any evidence other than that. The main purpose of this paper is to validate the point that augmented and virtual reality can shift such practiced perceptions.
Keyword: Augmented reality, virtual reality, beliefs, parenting, positive behavior

I. INTRODUCTION

In this paper, we will describe the usage of immersive technologies in a broader perspective. We, as humans, have a belief that are very different and are very contrasting which makes us all different from each other. A belief is some form of acceptance in our mind that has been perceived repeatedly through visual, auditory and olfactory senses. Beliefs are forged in the human mind with the three e's – environment, experience, and engagement. A newly born baby cannot have a preconceived thought pattern. Once a belief is formed our brain tries to look for its evidence. Most of the beliefs are formed by the age of six or seven.

At this stage the brainwaves of a child are generally in alpha and theta, also the ages between zero and seven are called a child's programming years. The beliefs implanted in our brains could be of different dimensions of human life. Most of our programs are molded by our parents who usually replicate those programs from their parents. Processing time reacting, responding and decision making becomes quick. Our beliefs determine our actions, so having limiting beliefs would not at all serve a person. But having empowering beliefs could help a human to achieve his or her desires. Beliefs are considered antecedents to attitude. Our brain's photostatic nature duplicates or records perceptions, beliefs, and events since the time of birth. We behave and respond due to these experiences that happen every day. All of this happens at an unconscious level. Our brain understands and remembers everything pictographically. No wonder we see people behaving like their parents or behaving like a person whom he or she has been constantly noticing and observing. This could create both positive as well as a negative impact on us because we have stimulated and immersed in those beliefs and actions so much that we cannot see other positive beliefs. We could change a limiting belief with observation and awareness but it would take a long time to do so as we have millions of thoughts during a day.

II. APPLICATIONS OF IMMERSIVE TECHNOLOGIES IN PSYCHOLOGICAL PERSPECTIVE

According to a recent article in "VERDICT" these technologies have become so visually pleasing and immersive that our minds cannot differentiate between an environment that is real and that which is virtual. AR and VR can have lasting psychological effects because they engage the sympathetic nervous system, which activates the fight or flight response. Since the human brain perceives and reacts to immersive digital experiences the same way as real-world ones, it can alter a person's perceptions of the physical world around them. Nowadays augmented reality is used to treat kids suffering from autism. Further virtual reality does the same, it is now being used to treat patients with extreme fear and anxiety. New products such as nurture pods are gaining popularity as parenting becomes easy and comfortable. There are many other applications where this technology can be used such as education, design, business, and logistics, medical and healthcare.
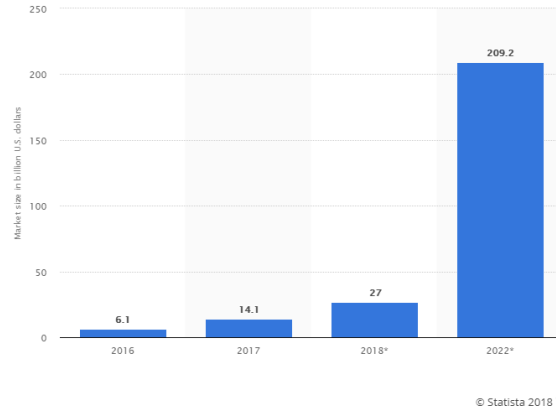
A. Market Value And Predictions

Fig 1: vr market prediction

Many research organizations predicted that the market of these two technologies would grow more than 50 billion dollars. This means that there are a lot of organizations and people who are already using it and the number would increase by 2022. According to Goldman Sachs, this would reach more than 80 billion dollars by 2025.

B. Immersive Technologies For Constructing Beliefs And Perceptions Of Children Below The Age Of 0-7

Mel Slater who is a Professor of virtual environments in university of Barcelona suggested that VR can transform where you are and who you are. It means we can alter such kind of beliefs in the same way as we do in a therapy session. We classify these beliefs as potential beliefs and targeted beliefs. The potential beliefs act as a barrier for allowing targeted beliefs to get imprinted in our minds. Recent research shows that for any behavior to occur we need three things motivation, capability, and opportunity. This is called comb model of behavioral change. Currently, VR is also used to teach children with learning disabilities. Since young children do not understand what is the actual and virtual environment it is easy to implant positivity and empowering habits in their minds than adults who have conflicting and disempowering beliefs. According to Mel Slater and his concept of embodiment, it is possible to create beliefs and patterns to change once behavior even at the adult stage. But here we are talking about a new style of parenting. To learn new perception which are serving the entity and humanity situations must be programmed into a VR system to experience them. So let us consider a very simple example, a child sees his father throwing waste on the roads making the city unclean, so s/he picks up beliefs something like "it is acceptable to make the city dirty". S/He may carry this belief for a long time. Recent research is showing that many adults who have high depression levels have some beliefs that have been implanted in them at an early age. So what we do in virtual reality is to create avatars and program some scenarios that teach or train kids to keep their city clean. This way the belief that could form is "it is important for the city to be clean". A properly equipped IVR system with accommodation of sensory modalities could be used. The environment could be static and dynamic and also project a certain environment based on feedback given by the body movements of the user. We can also use a ∞ made up of lightweight LCD's (liquid crystal display) which are highly reliable and efficient. Mel slater has coined the term place illusion which is "the feeling of existing in a place". If we watch a movie on a big screen does place illusion occurs? The answer is yes and no. Yes, because sometimes our senses are fooled with the auditory information that is being displayed. No because our brains have a 180-degree view and the screen could have 60 to 120 degrees of projection. So it all about activating and convincing your senses.

Let us understand the description in a mathematical way.

$H = \{h_1, h_2, h_3, h_4, \ldots, h_n\}$

$\Rightarrow h_x = [V^N_1.A^N_1.O^N_1 + V^N_1.A^P_1.O^N_1 + V^P_1.A^P_1.O^P_1 \ldots \ldots \ldots V^N_n A^P_n.O^N_n]$

$\Rightarrow h_x = [T_1 n + T_2 n + T_3 n + T_4 n \ldots \ldots + T_n n]$ $(n = 1 \ldots \infty)$

$\Rightarrow h_x = [T_1 3 + T_2 60 + T_3 200 + T_4 457 \ldots \ldots T_n n]$

$\Rightarrow h_x = [B^E_{1+} B^D_{1+} B^D_{1+} B^D_{1+} \ldots \ldots \ldots B_n]$

$\Rightarrow h_x = A_1$

As we discussed earlier, we can change the outcome by altering the very first step.

$\Rightarrow h_x = VR*V^P_1.A^P_1.O^P_1 + V^P_1.A^P_1.O^P_1 + V^P_1.A^P_1.O^P_1 \ldots \ldots \ldots V^P_n A^P_n.O^P_n < 7+AE$

$\Rightarrow h_x = T_1 n + T_2 n + T_3 n + T_4 n \ldots \ldots + T_n n$ $(n = 1 \ldots \infty)$

$\Rightarrow h_x = T_1 3 + T_2 60 + T_3 200 + T_4 457 \ldots \ldots T_n n$

$$\Rightarrow h_x = B^E_{1+} B^E_{2+} B^E_{3+} B^E_{4+}\ldots\ldots\ldots\ldots B_n$$

$$\Rightarrow h_{x=} A_1(P).$$

Here H refers to humans in any number, V=visual, A=auditory, O = olfactory, T= thought, B=belief, E=empowering, D=disempowering. VR = virtual reality, AE=actual environment. So adding VR to the lives of children may also help them to get empowered. As you can see if we induce or alter them at a lesser age where every behavior is tangible the person could be different one or a person with the right mindset. Since there is going to be a massive boom in this technology and they can be used for the medical and psychological purpose we have a chance to alter or plant a new belief in the human mind. The key to reprogramming your mind is a repetition of the thought or an event over and over again. If we could show a scenario where a person sees the same thing, again and again, using a VR set, his mind at some point of time would assume that to be true. Consider an example if a person who is scared or shy to speak with people, one might have a belief that "people in this world are arrogant and not good". So simulation of scenario quite opposite to this belief that is "people in this world are good, helpful and kind in nature" for a period of time would suspend the old belief and take in the new one. This is the way we can change the thought pattern and the action that a person or a patient produces. Due to the immersive nature of virtual reality and sounds inducing our brain into relaxation these pictures seep right into the unconscious mind.

Fig 2: children experiencing vr through the headset

Every child forms all of his beliefs from the age of zero to seven. Mostly they have beliefs of their mother and father which again could be both positive and negative. If we could convince a child about his potential, confidence, strength, awareness using simulations of virtual reality. He or she would undoubtedly see this world in a broader perspective and perform well in their professional and private lives because these beliefs would be so empowering and so meaningful to the child that failure and stress won't matter at all. This type of parenting would be much better than the conventional one. All parents might not have an empowering attitude and behavior towards their child so the child grows up with not enough awareness and passes them to his child and then it continues. The key here is presence or consciousness to choose what is right or wrong. If children were trained to do that using an immersive environment then they would be capable enough to choose between what is serving them and what is not. For those parents who want them to teach their kids at the age of 2 or 3 simply put the HMD and the kid could see alphabets and numbers dancing in front of them one by one which would directly seep into their unconscious mind and they would never forget what they have seen than any other sense they possibility viewed at that age. Parents also can send their children to sleep within a few minutes. Samsung has already announced that its VR technology can make their children sleep. It is a multi-user experience that sees parents guiding them to sleep.There is also a possibility that an augmented rotating spiral would possibly show up in front of his eyes to take him into deep trance thereby giving him a good sleep. The binaural beats would be playing at the same time to reduce the noise inside his/her head thereby waking them with peace of mind and a feeling of wellbeing. Education is one part and attitude, character and righteousness form another part of life. These are some of the advantages that these technologies have for children.

1) More remembering of a subject which is being played
2) Elimination of loneliness as there is always a smart virtual assistant which kids enjoy watching
3) Training the mind or feeding it with empowering beliefs
4) Helping working parents
5) Reducing the need of baby sitters
6) Easy sleep

7) More creative brain and more memory.

8) Can store more and more virtual toys and many other objects which can be programmed to the device.

The main aim of VR is to substitute real sense perceptions by the computer-generated ones from the database showing a three-dimensional scene, different animations and transformations over sets of mathematical objects which include the variation caused by the intrusion of the subject. IVR is very interesting as it is used for cognitive training for those children with ADHD (attention deficit hyperactivity disorder) and also used the autism spectrum disorder. Virtual doppelgangers push the self-recognition test to the limit it is a copy of his/her own self, but the child never had control of it at any point in time. With virtual doppelgangers, children watch themselves involving or indulging in behaviors that never occurred. For example, Segovia and Bailenson (2009) found that when children who are at the age of 6 or 7 watched their virtual doppelganger swim with whales, they got confused between reality and virtuality. They were more likely to have memories that are false in nature in these contexts compared with a no exposure control group. Through immersion, children's sense of self through time was altered. Characters in VR may be more influential on young children than characters on television or desktop. VR can be an effective tool for uplifting empathy among kids VR is an exciting technology that is already teaching and programming children with important life skills such as empathy and perspective said. There are lot of things that we should understand about VR, and we have a responsibility as parents to understand how it impacts child development so that we can minimize its negative effects while increasing the positives. While VR research is only up to some extent, concerns from the parents about safety also should be considered. There are few things they can do now to protect their kids, like setting time limits and providing a safe space for children to sit down and wear their headset. We also need to be aware of the content and speak to our children about what they are seeing and experiencing, including the difference between real and virtual characters. There are several important issues when it comes to kids using VR headsets, and most of the issues are the same concerns parents and doctors have had about any form of displayed technology. This includes the 3D effect in some of the game console, 3D televisions that require special glasses, and now headsets. The primary concern is that these images allow them to focus in a way that can cause strain, and extended exposure to them can cause eye damage. Kids are generally not good at recognizing minor problems until the problem picks up a lot of momentum and creates pain.

III. CONCLUSION

It is very important for us to know what we depend on what we believe. All of them start existing in your mind since the time of your birth. What I wanted to convey with this paper is that these technologies can be used to change beliefs and perceptions in a profound way. But this should be done at an early age where everything starts happening, in other words, preparing our children for the battle that they have to fight in the real world. Once they have beliefs and once they have that resiliency which could be developed by IVR systems. The core intention of this paper is to prove the point that technology not only disturbs and pollutes the mind, but it can change the mind and lives of people. Both augmented and virtual reality are expected to explode in the global market in the next decade. So if we could use it in a way which is human-centric there would be a lot of impacts that could shift the consciousness of the planet

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