AUGMENTED REALITY USE AS MEDIA TREATMENT FOR PATIENTS AGAINST ANIMAL PHOBIA (CASE STUDY: AU CENTRE HOSPITAL DR. M. SALAMUN BANDUNG)

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ABSTRACT

A phobia is a fear that does not make sense, or who feared not by fear. Patients do not know why he was afraid and could not avoid the fear. Based on the existing data in the AU Central Hospital Dr. M. Salamun at the Clinical Psychology, phobias are often found in hospitals is the phobia of animals, phobias, there are about 57% of all phobias have ever dealt with, such as dark phobia, height phobia, social phobia, water phobia, cramped room phobia , etc. And from the data obtained, there are approximately 43% of patients with cockroach phobia of animals phobia in here, after the cat phobia (19%), ant phobia (7%), fish phobia (6%), and the rest phobia against the other animals.

Applications to be built in the form of mobile applications and the main actor is a patient. This application is built to be able to provide information about phobia and its treatment, as well as a new training tool to be able to control his fear before entering the final stages of therapy that is flooding. Psychologists will guide the patient to perform the therapy with a pair of virtual glasses in which there is a smartphone that contains the application of this therapy for the patient, then the patient is told to direct his gaze to the bracelet marker, and when the object animals have appeared the patient is asked to interact with the patient accustomed to touch up.

Based on test results Blackbox, accuracy, therapy, and beta to this application, it can be concluded that the application can provide information yan clear enough to users and can be used as a training tool for patients to manage their fears.

Keywords: Multimedia Interactive Applications, phobia, phobia therapy, RSAU Salamun.

1. INTRODUCTION

A phobia is a fear that does not make sense, or who feared not by fear. Patients do not know why he was afraid and could not avoid the fear. Sometimes the fear is unreasonable that causes laughed and ridiculed his friends, so he is getting worried .. Phobia comes from an irrational fear of something specific, which is triggered by a stimulus that does not really intimidating or threatening the safety of themselves. Meanwhile, if the stimulus is indeed dangerous or threatening, it is not a phobia, but the fear is reasonable. [1]

Based on the existing data in the AU Central Hospital Dr. M. Salamun in the parts of Clinical Psychology, phobias are often found in hospitals is the phobia of animals, phobias, there are about 57% of all phobias have ever dealt with, such as dark phobia, phobia of heights, social phobia, phobia of water, cramped room phobias, etc. The phobia sufferers have experienced tremendous fear when seeing animals unfit for fear. And from the data obtained, there are approximately 43% of patients with

cockroach phobia of phobias animals there, after the cat phobia (19%), phobia of ants (7%), fish phobia (6%), and the rest phobia against other animals. Para penderita fobia ini mengalami ketakutan yang luar biasa ketika melihat hewan yang tidak layak untuk ditakutkan. Dan dari data yang didapat, ada sekitar 43% pasien penderita fobia kecoa dari fobia hewan yang ada, setelah itu fobia kucing(19%), fobia semut(7%), fobia ikan(6%), dan sisanya fobia terhadap hewan lain.

Therapies that are used for handling, among others, that psychotherapy, psychotherapist at this stage will use in-depth approach and ask the background of the patient with consideration of various factors to proceed to the stage of hypnotherapy or directly to desentisiasi. Hypnotherapy therapy is therapy in the form of suggestion, and most are in the subconscious to overcome the phobia patients, whereas desentisiasi therapy is gradually therapy, where patients are confronted objects that are not too similar to the original animal, similar to or a long distance to a distance of close to these animals. After that, the last stage that flooding is directly confronted with native animals in an enclosed area.

The problem there is when they've been through hypnotherapy and desentisiasi stage, but when the time of the flooding of therapy they still have a high fear. Because, at this stage of hypnotherapy is not everyone can be hypnotized, so the results are less or even none at all, same with desentisiasi, because they were trained only with images, video, and objects or objects that are not too similar to the original animal. In addition, they are less informed about the therapy to deal with his own phobia, and tahapan-stages, in addition to therapy at the hospital so that healing can be effective.

With the implementation of Augmented Reality technology is a technology that combines 2D or 3D virtual objects into the environment real, it is expected that existing problems can be overcome, because people with phobias towards animals as if seeing real animals in a real environment so that during the process of the advanced stage of therapy do not experience excessive fear. Based on the background already described, the research will be carried out entitled: "**AUGMENTED REALITY USE AS MEDIA TREATMENT FOR PATIENTS AGAINST ANIMAL PHOBIA (CASE STUDY: AU CENTRE HOSPITAL DR. M. SALAMUN BANDUNG)**",

the purpose of this study was as follows:

a. Can provide information in the form of a module which contains material about the type of phobia, phobic levels, as well as therapies for the treatment of phobias and video tutorials for the stages of therapy and hypnotherapy
b. As a means of exercise for patients with a phobia of animals by providing a 3D object that is similar to an animal, in order to manage their fears before going on stage flooding therapy.

1.1 Definition of Phobias

A phobia is an excessive fear on something or phenomenon. Phobias may be able to disrupt the lives of people who have it. For some people, fear a person with a phobia is difficult to understand. That is why, people are often made months-monthly ridicule by friends around him.

According Fathiah (2010.2) phobia is the fear of uncontrolled, irrational, and constantly on the specific object, situation, or activity. It can be concluded phobia is an irrational fear of something specific. In the case of phobias, the fear is triggered by a stimulus that does not really scary or threatening suicide. Meanwhile, if the stimulus is indeed dangerous or threatening, it does not include phobia anymore but reasonable fear.

1.2 Behaviour of Phobias

Phobias are experienced by sufferers are the events realized by someone within the limitations, namely the, inability yourself to overcome fear. According Fathiah (2010.2) that everyone basically has a conscious experience, where she can think about him and decide a course of action. [4] The action taken when a person experiences a phobia undergo a process in mind, among others:

1. First, the action taken in response to the threat of spontaneous.

2. Secondly, the action had an overwhelming urge that the existence of a threat.

3. Third, the action is only focused on the reaction of fear or anxiety. All sequences proficiency level indicates a person's mental condition affecting the phobia. And phobias experience will form the determination of a person's actions.

1.3 Causes of Phobias

Cause phobiacan be obtained directly through a traumatic experience, where a state of danger or pain will produce excessive response. According Fathiah (2010) Katakutan and a major source of human anxiety that encourages the emergence of a phobia with terror and feeling threatened tendency will be assessed through a review of philosophical. Emphasis explanation will be made on experience and subjective kesaran. Reaction arising from the impulse anxiety later DAK trigger fear unnatural behavior became so important as a form of expression of fear and also determine how the fatal result of thrust experienced phobias. [4]

According to Fathiah (2010.2) [5] There are three forms of vulnerability that contribute to the cause of a variety of phobic anxiety disorders:

A Through biological vulnerability (generalized biological vulnerability). The tendency to anxiety or tension that seems inherited. However, a thorough biological vulnerability to anxiety is not anxiety itself.

Vulnerability tha its through psychological (generalized psychological vulnerability). That is, based on initial experience, may grow up with the belief that the world is dangerous and out of control, and unable to cope when there are bad things that happened.

The vulnerability of specific psychological (psychology specific vulnerability). Where people learn from early experience, for example, of what is taught by parents, that situation or object dangerous (though not actually). For example, if the father is afraid of dogs, then the child will also be afraid of dogs because they thought that the dog is dangerous.

1.4 Pengertian Augmented Reality

Augmented reality (AR) a real-time display directly or indirectly from a physical object from a real plus to add objects in the virtual world sehinggan generate additional information on an existing object. Augmented reality combines real objects and virtual objects that exist, it is only a virtual object is added instead of replacing the real object, while the goal of augmented reality is to simplify the real object with the virtual object so that the information not only for the users directly. But also for any user who is not directly related to the user interface of the real object, such as live-streaming video. The main device for augmented reality is the display, input devices, tracking, and computer. [6]

One of the most important aspects of augmented reality is to create the appropriate techniques for intuitive interaction between the user and the virtual content AR applications. There are four main ways of interaction in the application AR: AR tangible interfaces, collaborative interface AR, AR hybrid interface, and appears multimodal interfaces.

a) Tangible Interface

Berwujud interface yang mendukung interaksi secara langsung dengan dunia nyata dengan memanfaatkan objek nyata, salah satu contoh dari tangible interface ini adalah pada aplikasai virtual fittng room dan game augmented reality pringleys dimana tabung dari kemasan pringleys menjadi marker dan control dari game tersebut.

b) Kolaborasi AR Interface

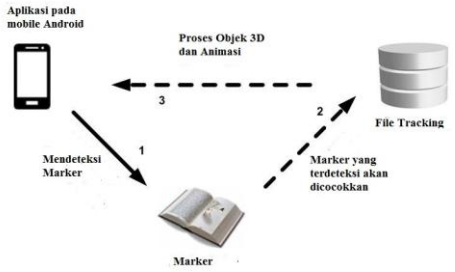
Kolaborasi AR interface menampilkan beberapa tampilan untuk mendukung suatu kegiatan dalam berbagi interface 3D untuk meningkatkan interaksi kolaboatif dengan banyak perangkat dan banyak user. Interface ini dapat diintegrasikan dengan aplikasi medis untuk melakukan diagnosa operasi.

c) Interface Hybrid

Teknik ini menggabungkan berbagai macam device berbeda, tetapi saling melengkapi interface serta memungkinan untuk berinteraksi melalui berbagai perangkat interaksi, contoh pada aplikasi Augmented Reality yang menggunakan sarung tangan dan kacamata.

2. THE MAIN OF RESEARCH

In the system architecture to be built consists of several components, namely; user as the use of the application, the application directs the user to connect with the camera at the marker affixed to the hand, the marker is detected as a marker (AR object), the system will do the tracking and matching marker used to identify markers that user, then the system is going to rendering 3D objects used in the application. Users can view the results via mobile phone screen. Overview of the system architecture can be seen in Picture 1.



Gambar 1 Arsitektur Sistem

2.1 Analisis Sistem yang akan dibangun

Applications to be built in the form of mobile applications and the main actor is the user, the application is localized for the patient. This application is built to be able to provide information about phobia and its treatment as well as a new training tool to be able to control his fear before entering the final stages of therapy that is flooding. Psychologist or psychiatrist to guide the patient to perform the therapy with a pair of virtual glasses in which there is a smartphone that contains the application of this therapy for the patient, then the patient wearing the bracelet marker, after which patients were asked to direct his gaze to the bracelet marker, and when the object animals have appeared the patient is asked to interact with patients accustomed to touch up, if during the process of interacting patients still fear, the therapy is stopped first and continued at the next session.

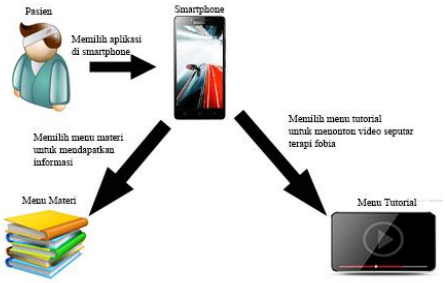
Steps in the process of information media are:

1.Pasien choose the application on the smartphone.

2.Pasien can select menu material or tutorial menu.

3. If the patient memilh material menu, then they will get information about phobias and handling.

4. If the patient chooses tutorial menu, then they will watch a video about the treatment of phobias.



Gambar 2 Proses media informasi

Steps on the therapyc process itself is:

1. Psychologist guide patients to appropriate therapy procedures.

2. Psychologist open the application on the smartphone.

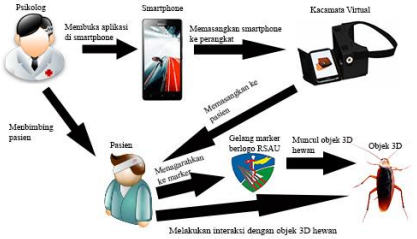
3. Psychologist pair smartphone device to a virtual glasses in a hospital.

4.Psikolog pair of virtual glasses to undergo therapy process.

5.Patient asked to direct his gaze to the bracelet bearing the marker RSAU.

6.After directed, it will display the 3D object animals.

7 .Patient asked to interact with 3D objects such animals to be able to control his fear of it.



Gambar 3 Proses pelaksanaan terapi

2.2 Analisis Informasi yang akan ditampilkan.

Information that will be displayed on the Main Menu Choose Matery there are

Tabel 1 Informasi Menu Pilih Matery

Menu Matery	The main of Matery
Kind of fobia	a.. Specific Phobias 1. Zoophobia (example : rat phobias, dog, or the other animals), Nature phobias (example : Elevated phobias, light, or water),and injury phobias. 2. situasional phobias (contoh: fobia in the flight, lift, or the closed place), 3. The other specific phobias (contoh : Costum character in the children fobias). b.Social Fobias (fobia yang berhubungan dengan kehadiran orang lain, dan individu cenderung menghindar).
Tingkatan fobia	a. Awal (ketakutan yang wajar), Gejala : Adanya rasa kecemasan/ketakutan di pikiran, takut untuk berinteraksi, kewaspadaan yang menganggu, reaksi menghindar dari jarak yang tidak terlalu jauh (<3m). b. Menengah (ketakutan yang menengah), Gejala : Reaksi menghindar dari jarak yang jauh (>3m), Peningkatan rasa cemas, kewaspadaan berlebih, munculnya keringat berlebih. c.Akut (ketakutan yang berlebihan), Gejala : Jantung berdebar, rasa cemas bahkan untuk objek yang mirip, reaksi menghindar sangat jauh, adanya reaksi tubuh yang terjadi, otot mulai menegang, mulai adanya gejala sakit kepala, muncul keringat dingin yang banyak. d.Kronis (ketakutan yang luar biasa), Gejala : Rasa cemas bahkan untuk objek yang tidak terlalu mirip, mual/muntah ketika melihat objek, sesak napas yang parah, melakukan berbagai cara untuk menghindari objek, keringat dingin yang dikeluarkan sangat banyak, tubuh gemetar terus-menerus.
Penanganan Fobia	a. Pendekatan psikoanalisis (penanganan yang betujuan untuk mengungkapkan konflik-konflik yang dianggap mendasari munculnya ketakutan yang ekstrem dan reaksi menghindar). b.Pendekatan behavioral (pendekatan yang menggunakan desentisiasi sistematis dalam penanganannya). c.Pendekatan kognitif (pendekatan dengan) Pendekatan biologis (pendekatan dengan pemberian obat-obatan sedative, tranquilizer, atau anxiolytics yang dapat mengurangi kecemasan dan ketakutan).

Sedangkan informasi langkah-langkah yang akan ditampilkan pada Menu Tutorial yang berisi video tahapan terapi dan

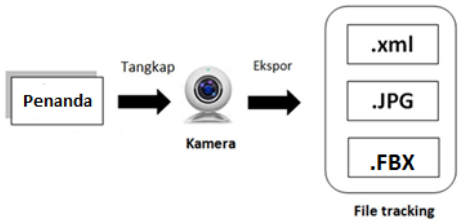
video hipnoterapi akan dijelaskan pada tabel 2.

Tabel 2 Informasi Menu Pilih Tutorial

Menu Tutorial	Langkah-langkah
Video Tahapan Terapi	a. Pencarian stimulus yang memicu gejala. b.Menaksir apa saja dan bagaimana gejala-gejala berkaitan dan bagaimana gejala-gejala membentuk perilaku pasien c. Pasien bayangkan sejelas-jelasnya apa yang dijabarkan oleh psikolog. d.Bergerak semakin dekat kepada ketakutan paling kuat yang dialami pasien, dan memintanya untuk membayangkan apa yang paling ingin dihindarinya. e.Mengulang prosedur tersebut sampai kecemasan dan ketakutan tidak muncul lagi dalam diri pasien.
Video Hipnoterapi	a.Pre-Induction, psikolog melakukan interview terhadap pasien dan menghilangkan rasa khawatir dan skeptis tentang hipnotis/hipnoterapi dan mengenali aspek - aspek psikologis dari pasien. b.Induksi, cara yang digunakan oleh seorang psikolog untuk membawa pikiran pasien berpindah dari pikiran sadar (conscious) ke pikiran bawah sadar (sub conscious), dengan menembus apa yang dikenal dengan Critical Area. c. Deepening , psikolog akan membawa klien ke pikiran bawah sadar lebih dalam. Sugesti diberikan kepada pasien pada saat proses hipnotis masih berlangsung dan diharapkan terekam terus oleh pikiran bawah sadar klien meskipun klien telah keluar dari proses hipnotis. d.Terminasi, psikolog membangunkan pasien secara perlahan – lahan akan membangunkan klien dari pikiran bawah sadarnya dan membawanya ke keadaan yang sepenuhnya sadar.

2.3 Analisis Marker

Tahapan dalam menganalisis bentuk dan isi pada penanda yang digunakan. Marker merupakan perangkat keras lainnya dan salah satu bagian dari Augmented Reality (AR) atau biasa disebut penanda. Adapun alur untuk pendeteksian marker yang digunakan pada aplikasi Unity 3D dapat dilihat di gambar 4



Gambar 4 Alur pendeteksian marker

1.Penanda merupakan marker yang ditempelkan di tangan dan akan diproses ke dalam database melalui deteksi kamera, kemudian diekspor menjadi file tracking.
2.Kamera yang digunakan untuk pendeteksian marker dalam Unity 3D bisa berupa kamera laptop/smartphone ataupun webcam dan kamera eksternal.
3.File Tracking adalah hasil deteksi dari penanda yang berisi marker kedalam bentuk file berupa .xml, .JPG , .mp3 dan .BIN. File .xml berupa slide show informasi / materi, file. Jpg berupa gambar-gambar yang ada, file .mp3 berupa audio / suara, file .fbx berupa objek

Adapun bentuk dari marker yang akan dipakai di aplikasi ini adalah berbentuk gelang yang dipakai oleh pasien untuk

pendeteksianya, sehingga nantinya jika gelang ini sudah dipakai maka akan memunculkan animasi objek 3D beserta geraknya dan untuk pemilihan hewannya berdasarkan menu yang nanti akan muncul.
Contoh dari marker yang akan dipakai seperti pada gambar 5 dibawah ini.



Gambar 5 Gelang marker

2.4 Pengujian Terapi

Pengujian terapi adalah pengujian untuk mengukur keberhasilan dari terapi itu sendiri. Dikarenakan waktu normal untuk terapi sampai pada tahap kesembuhan memakan waktu yang cukup lama, maka pengujian yang dilakukan hanya akan berupa pengujian jangka pendek dengan tujuan hanya untuk mengukur apakah ada sedikit perubahan sebelum dilakukannya terapi, tidak sampai tahap yang lain.

Pengujian terapi sendiri dilakukan selama 7 hari dengan durasi 30 menit sampai 1 jam, dengan jenis dan tingkatan yang beragam dan tahapannya adalah sebagai berikut :

1. Pasien dibimbing oleh salah satu psikolog yang ada di bagian Psikolog Klinis RSAU Salamun.
2. Pasien dijelaskan materi seputar fobia dan penanganannya, melalui aplikasi yang sudah dibangun.
3. Psikolog memasangkan sebuah kacamata virtual kepada pasien, untuk melakukan proses terapi.
4. Pasien melakukan proses terapi sesuai jangka waktu yang sudah diberikan, dan psikolog berhak menghentikan proses terapi tergantung dari kondisi pasien itu sendiri.

Berdasarkan hasil pengujian yang telah dilakukan dapat disimpulkan bahwa aplikasi ini cukup berhasil dijadikan sebagai sarana latihan bagi pasien untuk menghadapi rasa ketakutannya, karena ada sebagian yang mengaku mengalami perubahan baik sedikit maupun signifikan, walaupun yang sebagian lainnya tidak ada, karena waktu yang dibutuhkan untuk setiap orang itu berbeda-beda.

2.5 Pengujian Betha

Pengujian beta dilakukan secara langsung terhadap pengguna sistem dengan melakukan wawancara kepada pengguna terhadap sistem yang telah dibangun. Wawancara dilakukan kepada 10 orang pengguna yang akan diajukan beberapa pertanyaan. Adapun pertanyaan-pertanyaan yang diajukan sebagai berikut :

a) Menurut anda apakah aplikasi terapi fobia ini dapat menampilkan informasi yang jelas sehingga dapat dimengerti dengan baik?

b) Apakah aplikasi terapi fobia ini dapat menjadi sarana latihan yang baru dan baik untuk pasien dalam menghadapi ketakutannya?

Berdasarkan dari wawancara yang dilakukan terhadap 10 pengguna tersebut, rata-rata dari 10 pengguna tersebut menjawab :

a) Cukup jelas, informasi yang ditampilkan dapat langsung dimengerti oleh pengguna.
b) Mungkin dapat, dikarenakan objek yang ditampilkan di aplikasi ini lebih mirip dengan hewan aslinya, dibandingkan dengan media lain yang dulu sudah dicoba.

Berdasarkan hasil dari pengujian betha di atas, dapat disimpulkan bahwa aplikasi terapi fobia ini dapat menampilkan informasi yang jelas dan dapat langsung dimengerti oleh pengguna dan mungkin dapat dijadikan sebagai sarana latihan bagi pasien dalam menghadapi ketakutannya, walaupun fitur yang ada di aplikasi ini masih belum banyak yang sudah tersedia.

3. CONCLUSION

Based on the implementation and results of testing that has been conducted on therapeutic applications of this phobia can be summarized as follows.

1. The application is capable of providing clear information for users, so that information is easy to understand.

2. The application can be a means of exercise for the patient to control his fear.

For a system built to work better, should do the following things:

1. Display more enhanced further so that users are increasingly interested in using this application.

2. Application features a more expanded andrepaired again.

3. 3D objects are more dimiripkan animals with original animal and propagated back type.

4. 3d motion of the object more real animals, such as flying, or walking into rooms of without having to use a marker.

5. Phobia therapy for other phobias, such as phobias narrow room, a phobia of heights, etc

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