Dynamic Visual Therapy for Alzheimer Patients

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Abstract

Intervention by using dynamic visual technology can be a persuasive nourishment mechanism in order to enrich the quality of life for individuals with Alzheimer's disease (AD). Interventions that contain reminiscence use the person's creativity and memoirs to implicate them in activities that may offer a variety of aids. Unfortunately, the design of this technology can be a byzantine procedure. The objective of this study is to determine the role of dynamic visual as a form to enhance reminiscence psychoanalysis therapy for the patient with AD. Emphasizing of the subject was done on individuals who suffered mild stage of AD.

Keywords: Dynamic Visual, Alzheimer, Reminiscence, and Therapy

1.0 Introduction

Alzheimer's disease (AD) is a type of dementia that causes problems with reminiscence, idea, and manners. Individuals who were affected by AD remain physically able while slowly losing reminiscence and cognitive skill, which makes observation activities an essential aspect of care. These discrepancies might lead to a loss of personality and social seclusion (Alzheimer's Association, 2013; Damianakis, T et al., 2010). This will become even more significant in the future years as the figure of individual projected to have the disease escalate. Memories are essential as it forms the life of mankind. The deficiency of memory can produce revolutionize in character and behaviour. Besides that, AD patients are depending more on their caregivers with their routine and every day activities. Nearly one-half of individuals over the age of 65 show indication of AD. Hence, the needs to endow with social support for people who are affected by this persistent and byzantine disorder are becoming ever more crucial (Alzheimer's Association, 2013; Cohone, T. 2007). Alzheimer's patients encounter deterioration in the vicinity of reminiscence, concentration, verbal skill, problem-solving and the way of thinking. A reminiscence is a natural form of communication for older people. It can give them a sense of purpose, in going back over their lives and passing on valuable information to a younger generation (Thompson, P, 2000). Individuals who are suffering from AD lose the ability to embrace recent memoirs. This scarcity has completely impacted upon their ability to engage in a common conversation. The The use of assistive learning technology based dynamic visual has the potential to improve the quality of life and to extend AD patient independence. Technological enhancement may perhaps to help decelerate the inception of symptoms by keeping the AD patients cognitively vigorous. The ambiance from the visual produces a strong message for patient to sense and can be utilized as an aid of therapy for AD patient to enrich the reminiscence therapy experience for self-determination and self-confidence. The integration of dynamic visual, animation and new media is making likely much more advanced, adaptive technology for individuals with disabilities. The existence of several different media platform, together with avant-garde input and output devices, makes it much simpler to bestow viable alternative presentation and input mode through which individual with disabilities can gain access to the information and entertainment applications on their computer. Concerns have been expressed that developers should make every effort to ensure that their materials are accessible to all users (Kamaruzaman.M.F, 2013). The objective of this study was to examine the functionality of dynamic visual as therapy for AD patient and caregiver in conducting reminiscence therapy session. The importance of the dynamic visual system is especially significant in resident or vastly movable societies owing to the mixed background of the patients.

2.0 Literature Review

National Institute on Aging has stated that, there are approximated to be between 2.4 million and 4.5 million peoples who have Alzheimer's. There are about 417,000 people in the UK with Alzheimer's, according to Alzheimer's Society (Medical News Today, 2009). As for Asia Pacific's statistic, Alzheimer's patient has reached 18 million people, where there are approximately 60,000 people in Malaysia is affected by Alzheimer's. This number will be

increased to 120,000 by the year 2020 (Utusan Online, 2008). Memories psychoanalysis is an effectual treatment to enhance the sense of worth, ease social seclusion and offer solace in the elderly populace. It is also believed that memories are a significant form of communication for older people in general (Sarne-Fleischmann, V. et al, 2011). Reminiscence therapy and cognitive training are two of a universal non-pharmacological therapies used to treat Alzheimer disease. Mulvenna, M, (2009) found that psychosocial therapies are competent to lessen worsening in patients' situation and memories treatment is a paradigm of an intercession activity that can divulge and sustain an individual's personality. Individuals naturally rely enormously on visualization for interacting with the environment. Hence, there is a philosophical contact on a daily basis activities when visual impairment develops. (Perry, R. j & Hodges, J.R, 2000) Believed that dynamic visual and sensitivity functions, semantic reminiscence and concentration correlated significantly with the measure of daily living in patient with AD. Kamaruzaman. M.F. Azahari.M.H.H., R.Anwar (2012) ; Hashim, A., Riaza, M.R., Kamaruzaman. M.F. (2013) found that dynamic visual contain video and animation will make the AD patients more engaging to seek the information as it improved knowledge retrieval during the therapy session. Hence, it provides various culture therapy environments allowing the AD patients grasp the visualization information at their own velocity. In addition, impairments to visual awareness and reminiscence in patients with mild-to-moderate led to inadequate implementation in a complex condition such as counting and quantifying the monetary duty. The quality depends on many variables such as location and nature of the environment. Assistive learning technology refers to technology that offers to learn support. Most intervention technology is designed to support individuals' complete ordinary routine, such as reminiscence assistances or designing tools (LoPresti, E.F. et al, 2004). Gowans, G. (2009) found that reminiscence therapy is the most encouraging and successful incarnations, promotes shared positive human experience and supports individuals with dementia and caregivers in embryonic mutually supportive caring relationship. It is also believed that reminiscence therapy is established to simulate long-term memory for AD patients. The state of art has shown that memories therapy was introduced back in the 1980s. The therapy activities include conversation with another individual or group about past events and experiences that able to arouse feelings and memories [14]. For instance, designing an individual scrapbook that includes images of a person's life. Pictures that bring back memories are an excellent aid to reminiscence process. A memory book is an example of a simple way to organize memories. Visual and stories can be added to the memory book [8]. As mentioned by Gowans [9] that Reminiscence Therapy is a proven means to stimulate long-term memory to motivate communication in people with AD and other forms of dementia. There are numerous practices which use physical support such as memorabilia, audio video, and others.

2.1 Dynamic visual as a method to enhance memories

As a multifaceted formation, mankind is blessed with intelligence that can be experimental by the psychological manner that each individual has various stage of acumen and thus each individual has an exclusive cognitive profile. According to Howard Gardner (2006) in multiple intelligence theory, which is showed in table 1. It has seven manifold intellectuals at a

momentary look

It is believed that visual spatial perception, interpretation, and understanding of visual information theoretical associated to this study. Dr. Gary Small (2012) found that the extra vivid and detailed of a visual, the easier it will be to evoke. It also believed that dynamic visual could be also used in order to assist perception and express exactly as explained in content intensely if the input is lavish with allusion. It can broadcast ideas and would facilitate learners to comprehend the subject matter that is actually complex to be illustrated in verbal terms. In 2007, Mark Mizen studies on dynamic visual allow the mind to evoke concerning pleasant reminiscences from precedent to relate to contemporary surroundings. Psychologists' at the Wales University, led by Professor Dr. Linda Clare (2012), believed that the cognitive therapy technique could be helpful for the early stages in AD patients. The investigate implicated memory evoke practice by using visual imagery as a prompt to pieces of information, for instance in detection someone name and to remember patients earlier period visionary. While technology carries on to develop in the modern information era, reminiscence therapy method is also affected by this evolution. Embedded technology is recognized as the fourth resourcefulness of electronic knowledge setting (Vrasidas, C., and Glass, G. V, 2007). Besides, the new emergent technologies brought by assistive learning technology, have harnessed the energy of Information Communication Technology (ICT) bringing significant revolution in memories therapy environment for AD patient.

Table 1. Howard Gardner's Multiple Intelligence Theory

Number	Intellectual Category	Description	Learning Technique
1	Linguistic	Interpretation and explanation of ideas and information via language	Language and words
2	Logical Numerical	Understanding the relationship between cause and effect toward a tangible outcome	Logic and numbers
3	Melodic	Understanding the relationship between sound and feeling	Melodious and harmonious
4	Physical Kinesthetic	Physical agility and balance	Body movement control
5	Visual Spatial	Interpretation and creation of visual images, pictorial imagination, and expression	Analyze, and understand visual information
6	Interpersonal	Interpretation and behaviour and communications	Relationships / communication between people
7	Intrapersonal	One's own needs for and reaction to change, ability to deal with change in the workplace	Self-awareness of your own individuality

3.0 Methodology
It is a research that depicts the dynamic visual therapy opportunities for AD patients as a part of the process of remediation the obtainable medium due to development and enrichment in
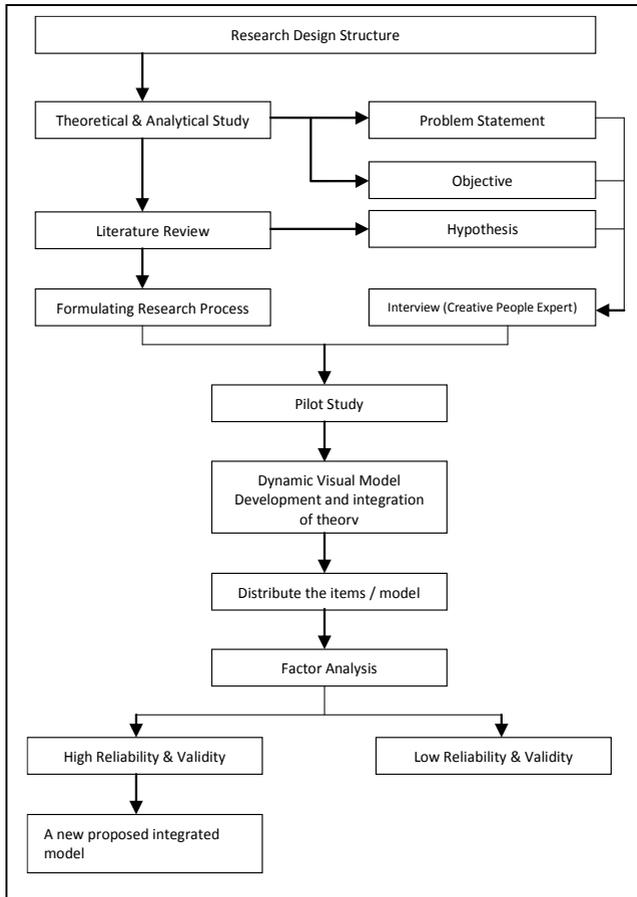
assistive learning technology.

Figure 1: Data collection process for dynamic visual therapy

Data for this research paper is gathered through observation and interview to twenty numbers of AD patients aged sixty to seventy years of aged who have been diagnosed with an early stage of Alzheimer. The group samples were taken from the Alzheimer Disease Foundation Malaysia (ADFM). The observation and interviews were carried out based on the categories and the level of the syndrome. The interview questions were developed on the basis of state of the art. While observation was carried out from a distance as been advised by the therapeutic staff at ADFM to see the natural environment of the AD patients. The observation model was inspired by Bronislaw Malinowski (1922) who develops

anthropological research to a primordial people, which it is believed to observe the complete life and environment of the population. The focus group was categorized based on AD patient gender and age. The selected sampling was discovered based on prevalence issue that they fail to memorize. The professional consultation also will be conducted in order to present realistic verification from therapist. The main principle of this activity is to categorize mechanisms, segments, and stages involved in assistive learning technology especially dynamic visual as a form to enhance reminiscent therapy for AD patients. The dynamic visual therapy model is based on blessing,L (2009) (refer to figure 1) will be the form for AD patients to cultivate, foster and gather the information as they might use as knowledge repossession. It is a part of the process or remediation the existing medium due to evolution and enhancement in the era of design, science, and technology.

4.0 Results and Discussion

It is a result that contained data collection in the preceding section was concluded (refer to table 2). Majority of the AD patient demonstrated different action and response throughout the experiment. Only ten AD patient who has been diagnosed with the early stage of dementia was involved as respondents for this experiment. All the respondents experience the experiment with the assist of the ADFM staff, where minorities of them were not positively engaged towards the embedded device. It is made to understand that they were vague impressions, confound and unwise. From the total number of AD respondent, seven of them were female, and the remaining three were male. It is made to believe that, from the investigation the AD female patients were stand out in using embedded device based dynamic visual in performing the experiment. They were enthused and engaged with the dynamic visual as a part of cultivating their reminiscence.

The data analyses were analyzed to achieve a better sympathetic on the AD patients' reminiscence aptitude to retrieve visual spatial. Patients were observed to identify their remembrance and confident stage by using embedded device based dynamic visual in performing the experiment. The reminiscence and confident stage was measured in three and five stages as seen in table 3 and table 4.

4.1 Discussion

The process of integrating the dynamic visual and embedded technology is a section of the better procedure of developing the said model. Several enhancement approaches have materialized over the past decade but they focus on the same ideas, which is to help the special group of people. In order to create a rich dynamic visual model, a System Development Framework has been used in this study. It is believed that in SDM linear framework, the waterfall model that has been used to bestows the direction process such as examination, modelling, testing, implementation and sustaining. According to Linda Night et al (2001), the waterfall model procedure will flow forward and never undo. Hence, it will enrich the system from time to time after gathering the response from other future AD patients.

Table 2: Data analysis collection

Patient	Age	Sex	Dynamic Visual Reminiscence Therapy										
			Capability to repossess dynamic visual	Memory Stage					Patient Response	Assertive Phase		
				Bad	Poor	Modest	Decent	Brilliant		Minimal	Average	High
P 1	70	Male	No	√					Blur	√		
P 2	69	Male	No		√				Mystify	√		
P 3	68	Male	No		√				Hushed	√		
P 4	67	Male	Yes			√			Keen		√	
P 5	66	Male	Yes				√		Establish			√
P 6	69	Male	Yes				√		Connect			√
P 7	73	Male	Yes			√			Enjoy		√	
P 8	63	Female	Yes					√	Impatient			√
P 9	65	Female	Yes					√	Inspire			√
P10	71	Female	Yes				√		Intense			√
P11	72	Female	No	√					Confuse	√		
P12	74	Female	No		√				Dilemma		√	
P13	69	Female	No		√				Peace		√	
P14	69	Female	Yes			√			Ardent		√	
P15	68	Female	Yes				√		Find out			√
P16	70	Female	Yes				√		Attach			√
P17	71	Female	Yes				√		Relish			√
P18	72	Female	Yes					√	Anxious			√
P19	73	Female	Yes					√	Instigate			√
P20	71	Female	Yes					√	Extreme			√

Table 3: Patients Assertive Level

Phase	Clarification
Minimal	No self-assured
Average	Uncertain
High	High self-esteem

Table 4: Patients Reminiscence Level

Phase	Clarification
Bad	Cannot figure out anything
Poor	Did not give any correct response
Modest	Mix up and take time to remember
Decent	Acquire a moment in time to memorize
Brilliant	Without doubt memorize

5.0 Conclusion

Based on the analysis and the research findings, it is found that dynamic visual will be an essential medium in repossession reminiscence awareness. It emerges as an interesting, motivating and engaging method to deliver the reminiscence therapy process for AD patients. AD patients who are captivated and mesmerized with the dynamic visual based on embedded technology would finally discover this medium give an exclusive and dynamic idiosyncratic. Hence, the AD patients will discover their sensible visual idea within the consistent practice as well as to achieve their self-independent and self-esteem.

Acknowledgement

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