Application of Visual Art Therapy Web Media in Concentration Ability Learning for Autism Children

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ABSTRACT

Autistic children are a term for children who have nervous system disorders that affect their daily behavior. Classification of children's emotions is a pediatric-related treatment that helps identify psychology, as in autistic children. Several models of handling children's emotions have used digital media for the therapeutic use of children with the need for concentration control and learning habits. Art therapy can use technology media to provide treatment through fun and interactive games. The sensation of technology can give space and time for the emotional fulfillment of autistic children. One of the uses of technology that can be used for learning autistic children is through educational website applications. The website's function provides the right solution to current needs in learning at school, with family, and in the surrounding environment. The material resource facility supports many references and literature using audio-visual media, games, and interactive learning.

Keywords: *Autism, website, visual art, interactive learning*

Introduction

The classification of children's emotions is a pediatric-related treatment that helps identify psychology, such as in cases of autistic children. Several models of emotional handling of children have used digital media for therapy for children with the need to control concentration and study habits. They are using camera and sensor signals in technological devices to detect emotional facial expressions in autistic children. Expression technologies such as gestures and behavior to identify the emotions of autistic children have an accuracy of 56% [1].

How to identify Emotionally autistic children can not be classified based on their character and individual needs. The emotions of autistic children with angry, sad, or happy expressions cannot be measured according to the impact that will be obtained. The lack of kinesthetic performance for autistic children applying facial expressions does not yet affect cognitive and psychomotor mental and physical development. Image and animation media in-game patterns can produce a sensation of well-being (comfort). Cognitive and psychomotor development provides a framework for handling therapy in the form of mental healing for children [2]. Likewise, the function of art therapy is to assist medical approaches to clinical applications for those with mental disorders. Aesthetic objects provide cognitive perception through imagination and creativity development for children's growth constrained by visualizing the characters of the things around them [3].

The contribution of art therapy is to provide sensory sensations as a stimulus medium for various cognitive barriers in children that need to be done regularly. The critical role of the artistic approach has a real impact on organizing the child's basic mental stimulus process. The process of personal cognitive treatment has stages of identification, self-awareness, individual readiness, attention and focus, self-based, and involvement of feelings towards sensations [4]. The theoretical foundation of art therapy seeks to develop literacy in the right brain and left brain in fulfilling child growth and development. The left brain manages logic, language, and reasoning, while the right brain hones aesthetic sensitivity through sensory perception in creativity, taste, and intention [5].

Art therapy can use technological media to provide treatment through fun and interactive games. The sensation of technology can give space and time for the emotional fulfillment of autistic children. Trends in treatment confirm this approach for autistic children using robotic technology that helps manage therapy and utilizes digital therapists for verbal communication, learning processes, and social interactions[6]. The findings

of several types of research on the use of technology for therapy have brought new advances in the further advancement of disability learning.

One of the uses of technology that can be used for learning autistic children is through educational website applications. The website's function is to provide appropriate solutions to current needs in learning in schools, families, and the surrounding environment. Material resource facilities support many references and literature in the form of audio-visual media, games, and interactive learning. Learning media is unique in explaining several animation and audio features in supporting material for the competencies to be achieved [7]. The significance of cases of autistic children experiencing an increase in concentration ability was lower than that of normal children, p=0.034.

The diagnosis of autism in children is positively higher by 88% for behavior that appears spontaneously [8]. This study aims to develop the concept of art in educational website applications in monitoring behavioral concentration in the Visual Art Therapy (VAT) model for autistic children. The indicators analyzed in this study are social development and communication behavior in the learning process through the VAT educational website. Autistic children have unique characteristics of interaction disorders, emotions, and sensory perceptions[9][2].

Research Methods

The research approach uses a mix-method type with a sequential exploratory variant focusing on plural data. The application of the research method begins by exploring the various characteristics of autistic children who participate in therapy and study programs at the Lentera Hati School, Kudus Regency. The research participants were 25 children aged between five and ten years. Qualitative data analysis uses observations of the research locus's learning environment, activities, facilities, and infrastructure. Interviews were conducted with various mentors and parents to find data on the fundamental understanding of autistic children in everyday life. Document studies are used to support findings from archives and behavioral photographs empirically. Quantitative data uses a behavioral assessment questionnaire and aspects of the child's concentration in conducting the VAT website application. The validity test of the questionnaire instrument was analyzed with the Aiken validity coefficient to measure the results of assessments between experts and experts [10][1][11]

$$v = \frac{\Sigma s}{(n(c-1))} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

The questionnaire instrument was revised gradually so that it could become a recommendation for use. The normality test uses Lilefors, and the homogeneity test uses the F test. The effect of using VAT website uses an independent t-test to analyze the categories of autistic children's disorders. At the same time, the ANOVA test with SPSS was carried out to test the hypothesis of whether there is a significant influence between the use of the VAT website and the behavior of autistic children seen from the age category[6], [12], [13].

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - do}{s_P \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Results and Discussion

The results analysis and discussion stages of this study consisted of (1) an initial analysis of the preparation and creation of the VAT educational web; (2) the influence of the VAT educational web, and; (3) the learning outcomes of using the VAT educational web for autistic children. The following is an explanation of the analysis that has been produced as follows;

1. Preliminary analysis of the preparation and creation of the VAT Education Web

This step of analysis used exploratory sequential data collection in which the research team made previous observations at the non-formal school of the Lentera Hati Foundation in the Kudus Regency. Based on empirical observations, the students in the school consisted of 25 children between the ages of 3 and 12 years. The autistic learning process of the developmental constraints of communicating, interacting, and imagining. Disorders of autistic children occur with deficits in brain development, social problems in individuals, and stereotyped behavior [14][15]. Handling of autistic children is carried out intensively and individually with various special skills to improve concentration abilities. This has been done in learning with various visual media as an active stimulus as a spontaneous driver to observe learning objects. The Lentera Hati School has carried out visual learning activities in Kudus Regency in the education process and routine services[16][17][18][19].

Figure 1. Activities Of Autistic Children Using Visual Media In Learning For Concentration Abilities

Visual media in the needs of autistic children are used to train sensory perception sub-skills and practice it repeatedly so that it can be mastered as reinforcement. According to explained that visual media can facilitate a practical understanding of memory in the parable of objects to provide a relationship between the content of learning material and the occurrence of learning resources for autistic children[20], [21]. The function of visual media is an effort to improve concentration abilities which can help vocabulary and language knowledge as individual therapy, as is the case with the results of interviews with the educators of the Lentera Hati School Foundation, Kudus Regency, which stated that there was an influence of stimulus learning media in the form of visuals as an aesthetic approach and a simulation method for increasing cognitive memory on the perceptual needs of autistic children.

The results of the initial analysis related to the need for VAT learning media for educators of autistic children at the Lentera Hati School in Kudus Regency responded by 67% related to inadequate availability. Adequate conditions have a response of 21% on the grounds that visual media is in the form of image and color props. At the same time, the need for problem solutions related to the need for visual-based interactive media has a response of 87% stating that they strongly agree with VAT media. The results of the need for learning media based on Visual Art Therapy (VAT) can be seen in table 1 as follows.

Table 1. VAT-Based Learning Media Needs

	Initial Needs Indicator	Prior Conditions	Answer Questions			
			SM	M	TM	TT
1	Availability of Interactive Visual-Based Learning Media for Autistic Children	The Beginning of the Existence of Visual Media	6%	21%	67%	6%
	Need Response	**Problem Solution**	SS	S	TS	TT
2	Tanggapan terhadap Perlunya Media Interaktif berbasis visual	There is Media Visual Art Therapy	87%	7%	7%	-

Notes: **SM** (very adequate), **M** (adequate), **TM** (inadequate), **TT** (don't know), **SS** (strongly agree), **S** (agree), **TS** (disagree), **TT** (don't know)

Visual-based learning media for autistic children uses more traditional elements of color and shape. Empirically, the learning treatment of autistic children in using media is shallow, which is related to the exploration of digital interactive use and influences the actions of educators to maximize interactive education [22]. Disorders of autistic children in pervasive development begin with social behavior, communication, and imagination. The role of technology in learning media can show the significance of sensory perception. Playing and therapeutic actions can minimize social competence and communication skills[4], Based on an analysis of visual-based interactive media, compliance, and solutions are designed to compile digital tools in the form of a VAT-based educational web for autistic children at the Lentera Hati School, Kudus Regency.

The steps for making a VAT-based educational web outline include (1) determining the web domain; (2) web structure design; (3) preparation of web content, (4) design of animation and images, and (5) finishing of web products. The flow of creating a VAT-based educational web can be seen in chart two as follows.
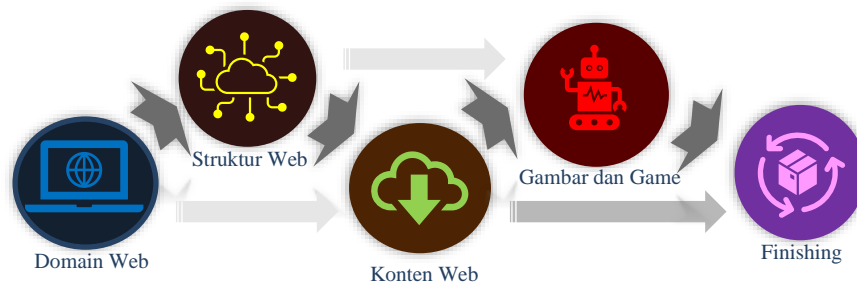

Figure 2. Website Creation Flowchart

The domain is a unique name to identify the name of a computer server, such as a web server or email server on the internet. The domain is also called the address that needs to be inputted to access a website. The web design is a Top Level Domain (TLD) with a .com extension, www.edukasianakautis.com. This domain name was chosen as one of the development objectives: to educate autistic children through the media website. The structure of the educationanakautis.com website can be seen in Figure 3 as a diagram below.

Figure 3. Website Structure Flowchart

Website design for the education of autistic children which aims to assist in providing education to autistic children, especially at the Lentera Hati Kudus Foundation. The educationanakautis.com website uses a WordPress Content Management System (CMS). CMS is a platform that manages a website's content, making it easier for managers. CMS can display the same data as the user interface (UI) in a visual form, so it's easier to create a website without having technical knowledge of programming or website coding. WordPress is an easy-to-use and open-source CMS, so WordPress users can freely modify their coding structure. The website page analysis design has several sections: header/slider, main menu, content, games, and videos. The website design results can be seen in Figure 4 as follows.

Figure 4. Display of the Website Home Page

1. Expert Validation Test

In this study, website validation tests were carried out by website experts, namely Priyadi, S.Kom., M.Kom. Competent and experienced in the field of website design and creation. The validation activity occurred on August 15, 2022, by demonstrating the website and submitting the assessment questionnaire instrument manual to the website experts. The assessment instruments include usability, functionality, and visual communication. The validation results with website experts obtained an accessibility percentage of 87% with an outstanding category.

There is a suggestion from website experts that the gallery view does not only display images but can be equipped with clear descriptions so that website users can understand images better. Then in articles and tips and tricks, it is hoped that not only image assets on the internet but also authentic images in the field.

1. Limited trial = 70%

In the limited trial phase, the author demonstrated the website to the teaching team at the Lentera Hati Kudus Foundation. The trial includes aspects of learning related to the material's clarity and ease of learning flow. The programming aspect is the level of interaction with the media, and the display aspect is associated with the selection of background images, font types, and the use of language. Lastly is the implementation aspect, which is related to the flexibility of the use limit edited trial conducted on September 10, 2022.

2. Product revision

Based on data from the limited trial, product revisions were made, including adding tips and tricks related to handling autistic children based on case studies in the field by the teaching team from the Lentera Hati Kudus Foundation. The activity agenda also needs to be added based on the activity plan that has been agreed upon between the research team and the Lentera Hati Kudus Foundation.

3. Extensive Trials

Extensive trials were conducted to determine the feasibility of the educational website media for autistic children at the Lentera Hati Kudus Foundation. The number of respondents to the wide trial was 16 students. The trial was carried out by demonstrating the website in front of the class and students also operating it via their respective laptops or tablets accompanied by the foundation's teaching team. This trial's evaluation includes programming, display, learning elements, and implementation aspects. The trial of this website was carried out on September 23, 2022. The average test results of 12 students obtained a value of 85% with a scale conversion value of 5 being Good

Conclusion

This study applies VAT (Visual Art Therapy) based website therapy as one of the uses of technology that can be used for learning autistic children. The website's function is to provide appropriate solutions to current needs in learning in schools, families, and the surrounding environment. Material resource facilities support many references and literature in the form of audio-visual media, games, and interactive learning. Art

therapy can use technological media to provide treatment through fun and interactive games. The sensation of technology can give space and time for the emotional fulfillment of autistic children.

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