Research Article

"Help ASD's with Fun Way": Detective Looking Chart-Plutchik Emotion Games For Kids Through Vark Model To ASD Children

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Abstract: *One of the 17 SDG Sustainable Development Goals announced by the UN in September 2015 is quality education. "Ensure inclusive and equitable quality education and promote opportunities for lifelong learning for all" is the focus of SDG criteria number 4. To ensure that children with special needs, such as Autism Spectrum Disorder (ASD), receive parallel schooling in both their academic and personality components, "Parallel Education." As a complex developmental impairment, autism has no racial, ethnic, or social differences regardless of family income, way of life, or degree of education. Children with autism also have difficulty using their social imagination. In order to better meet their demands for enhancing brain development, the approach in the education sector must identify initiatives in developing teaching and learning resources and tools. For teachers and schools, ministries, communities, parents, guidance (the instructors), and the nation to approach the needs of children, tools for this type of group are required. The disease has a significant impact on three key areas: conduct, social skills, and communication abilities. Additionally, this innovation can be related to behavioural and developmental therapies for ASD in shaping learning that influences parts of cognition and emotion. This game was developed as a teaching tool for autistic kids and serves as a platform to gauge their emotional states using the Plutchik wheel of emotions. The research needs of autistic children in obtaining instruction using the VARK (visual, auditory, reading/writing, and kinesthetic) model informed the development of this game. This study has created a gameboard to raise the emotional level of autistic children through the cognitive and affective domains, ensuring that their particular sensory needs are met in addition to aiding their psychomotor development. By concentrating on emotional evaluation, the study will also uncover new concerns and requirements for autistic kids who have sensory issues. To assist them in learning, educational items (teaching and learning aids) are created in order to help this target group at any canter of autism.*

Keywords: Autism Spectrum Disorder (ASD), Complex Disorder, Brain Development, Disability Ability, Teaching and Learning Aids.

1. INTRODUCTION

Children with autism exhibit more stereotyped and rigid conduct and are more frustrated in their social interactions and communication. This illness also has a tight relationship to intellectual disability (ID), which is one of the most prevalent neurodevelopmental disorders. Due to the great heterogeneity of both disarrays, 40% of specific instances have thus far been linked to genetic alterations. 2020 (Kasherman). Boys are four times more likely to have it than girls.

According to The National Autism Society of Malaysia (NASOM), autism crosses all socioeconomic, racial, and ethnic divides as well as family income and educational attainment. According to a ratio research, 1 in 68 newborns are thought to have autism and related behaviours. Nearly 1 in every 68 kids suffers with ASD. ASD is known to occur in all racial, ethnic, and socioeconomic groups. Boys (1 in 42) are 5 times more likely than girls (1 in 189) to have ASD (Nadeem 2020).

Moreover, social imagination was a challenge for autistic kids. The disease has a significant impact on three key areas: behaviours, social skills, and communication abilities. This study is crucial to ensure that children with autism receive the extra attention they require for their sensory needs. In fact, if given considerable consideration, autistic persons can properly anticipate a lack of expertise, training, and understanding in these services (Crompton,2020). The investigation will also uncover fresh challenges and the requirements of autistic children who have difficulty focusing due to sensory disturbances. To aid them in the learning process, educational products (teaching and learning aids) should be developed. Additionally, technology is frequently employed to impart conceptual information and skills to students (Valencia, K 2019).

2. METHOD & MATERIAL

The visual teaching resources utilized to support children with ASD from the perspective of the ASD instructors were investigated in this study using the qualitative research approach. Besides, realizing the development of a teaching aid for children with Autism Spectrum Disorder, ASD by implementing the VARK Model of learning styles based on four main types of learners: visual, auditory, reading/writing, and kinesthetic. In addition, the construction of this game board is based on the idea that ASD children can express emotions based on Plutchik's wheel theory, which highlights emotions that help ASD children visualize the spectrum of emotions and how they relate to each other. Besides, this innovation can be linked in developmental, and behavioral interventions for ASD in shaping learning that effects cognitive and affective aspects.

The method used in the pilot study to obtain the validity of the data based on ethnographic field study involving Contextual inquiry which is to conducted based on Real Case Observation (RCO) from instructors. This process is relevant in that it involves in-depth interviews based on observation from instructor's views of small sample users to gain a robust understanding of work practices and behaviors by study process for data collections. All instructors (teacher and counsellors) from learning institutions are informant.

Among the questions asked are:

1. Do autistic children know game board?
2. How does gameboard effect autism?
3. Are game board specific design good for autism?
4. What type of teaching materials you used in class?

5. How long can autistic children focus in a single learning session?
6. What are the appropriate effect teaching aids to actions the emotions of ASD children in receive learning?

2.1 Population and Sampling

Five experts from academic institution of Autism Association in Malaysia were selected as informants in this study. Their opinions and experience working in education who have ASD are applicable to the current investigation and are essential to supporting the findings.(Newman, 2014).The informant's description, which was properly coded to ensure that private information remained secret, is shown in Table 1.

Table 1: Classifications and descriptions of the ASD's instructors

Informant	Date of Interview	Venue of Interview	Coding
Instructor 1	17 November 2021	Guru Pendidikan Khas, Selagor	**INS(1)**
Instructor 2	18 November 2021	Guru Pendidikan Khas, Jerantut, Pahang	**INS(2)**
Instructor 3	17 November 2021	Bahagian Pengurusan Psikologi, Jabatan Perkhidmatan Awam, Selangor	**INS(3)**
Instructor 4	17 November 2021	Kaunselor, Negeri Sembilan	**INS(4)**
Instructor 5	18 November 2021	Kaunselor, Pahang	**INS(5)**

3. FINDINGS

The findings of the focus group interviews are discussed in this section. It presents an analysis of the verbal exchanges they had with the interviewers after receiving questions a week before. Five informants were questioned during one-on-one and indepth interviews, with each source receiving a separate set of questions. The responses were categorised into two main themes based on the VARK model and Plutchik Theory which are i) Visual and Kinaesthetic (Cognitive), and, ii) Emotion (effective). The following section contains information on the transcription.

3.1 Descriptive analysis on the interview of the visual:

Table 2 shows the coded answer of the informants in four different questions on the design characteristics which are categorised into (i) autism and colour, (ii) colour effect, (iii) bright colour, and (iv) soothing colour. The responses of each informant are disclosed and coded in the following table (Table 2).

Table 2: The interview coding and theme (Visual)

INFORMANT	VISUAL		
	Game board Exposure	**Game board Effect**	**Specific Design Game Board**
INS(1)	Lack Of Exposure	Must Be Able To Adapt To ASD Children	Games And Their Components That Are Supported To Adaptations
INS(2)	Not Implemented In All Sectors	General Guidelines For Adapting Games For Children With Autism	Will Experience In A Game
INS(3)	Lack Of Guidance	Can Make Friendships	Clear Understanding
INS(4)	Lack Of Specific Game Board For Them	Learn Social Skills	Opportunity To Express Any Anxieties Or Ask Questions (To The Best Of Their Ability) Ahead Of Time
INS(5)	Lack Of Skill By The Instructor	There Needs To Be Cooperation	Opportunities For Skill Practice

Table 3: The interview coding and theme (Kinaesthetic)

INFORMANT	KINAE ıTHETIC	
	Teaching materials	**Focus in a single learning session**
INS(1)	Learning Aids That Are Made By The Instructor	Not More Than 30 Minutes For Each Game
INS(2)	Existing Teaching Aids That Are Sold On The Market	At Least 30 Minutes
INS(3)	Uninteresting Tools	Below1 Hour For Board Game
INS(4)	Lack Of User Friendly Aspects For ASD Kids And Not Sustain	Subject To The Type Of Game Board That Can Attract Their Attention
INS(5)	Difficult To Carry Anywhere	No More Than 40 Minutes

Table 4: The interview coding and theme (Emotion)

INFORMANT	EMOTION
	Actions the emotions
INS(1)	Well manage their emotion
INS(2)	Understand their emotion based on their performance
INS(3)	Know to exposed the right emotion
INS(4)	Know how to perceiving their emotion
INS(5)	Can impulse control of emotion

4. PRODUCT RESULT

4.1 Plutchik Emotion Games For Kids Through Vark Model To Asd Children Toys

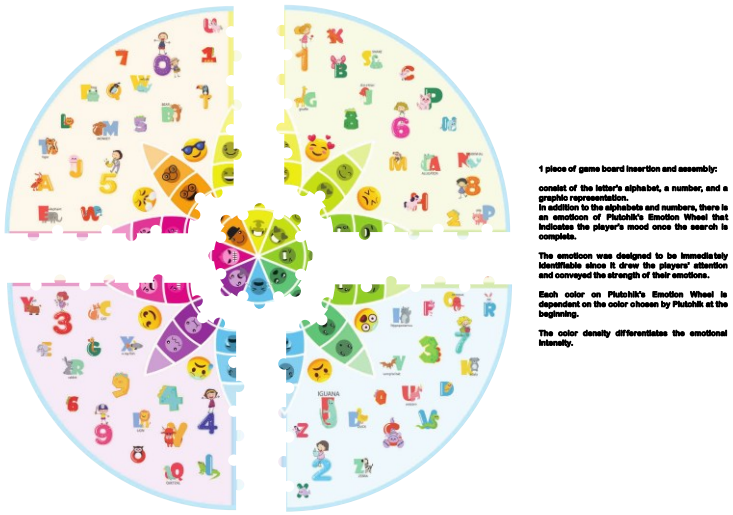

Figure 1. Game Board Criteria

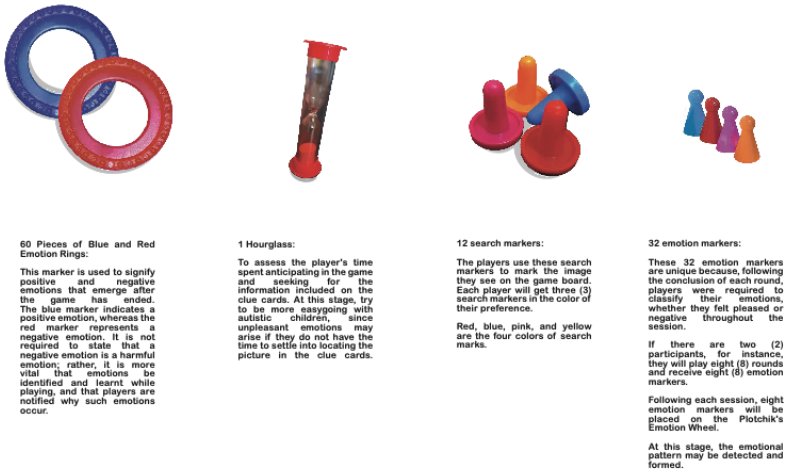

Figure 2. Game Board Component

Figure 3 Game Board Flash Card

4.2 Game Board Details

Figure 4 Product Criteria (Indicator)

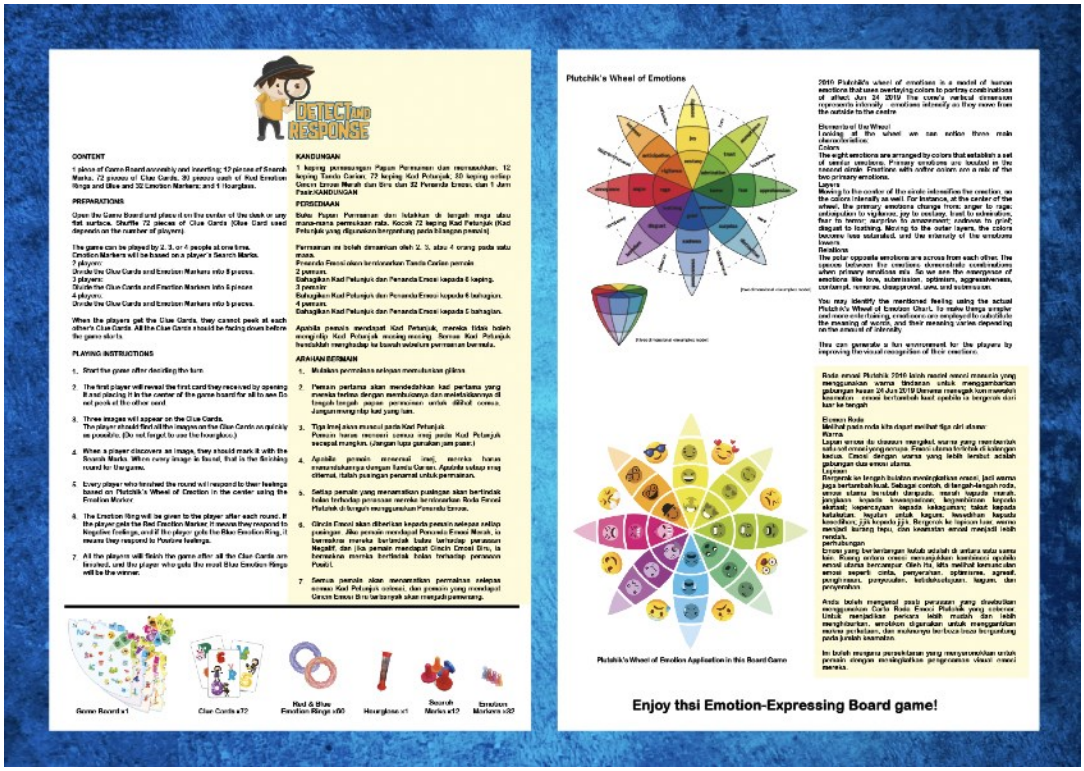

Figure 5 Game Board Instruction

Figure 6 Game Board Prototype

5. DISCUSSION

Based on the findings, a product for curriculum creation of ASD children was produced to assist them in meeting their demands based on cognitive and affective, as well as parallel with the emotional needs in obtaining a lesson. Based on the findings of this study, the researcher created a board game to assess the amount of sensitivity of ASD children in understanding their particular requirements when learning. This innovation is a suitable suggestion for children diagnosed with ASD and can be used with instructors. This product has the potential to be commercialized in autism centers, therapy centers, rehabilitation centers and caregivers. The high impact will be seen through the behaviour of ASD children who can improve the percentage of their emotion. Children can interact easily, get information, and remember it thanks to increased reality, an innovation that is not just useful for certain age groups or educational levels (Wedyan,2021). Teachers had a wide range of concerns pertaining to curriculum, instruction, materials, methodology, and innovation to overcome in order to ensure that students with special needs could be educated. Teachers may also need some planning, ideas, and resources or co-creation with designer to design creative teaching aids (Berestova, A. 2021).

6. CONCLUSION

This invention can be used with teachers and is a good option for kids with ASD. The prospective markets for this product include caretakers, therapy facilities, rehabilitation facilities, and autism centres. Children with ASD whose behaviour can increase the percentage of their emotion will be able to demonstrate the great effect. Based on the results of this study, the researcher developed a board game to measure how sensitively ASD kids recognise their unique learning needs.

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