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Integrated special education program: Woodworking training skills by using teaching aid

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Abstract

This research aims to develop a Teaching Aid which is Smart Cot to be included in the Furniture Manufacturing Basics subject introduced by the Ministry of Education specifically for special needs students for the Integrated Special Education Program based on learning problems. The method used in this research is the qualitative method through interview, observation, and checklist form. Researchers recommend that the teaching aid Smart Cot can be used

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by teachers in the teaching and facilitation process on the topic of Furniture Making Basics to special needs students in order to improve their performance and mastery of woodworking skills.

Keywords: Special education; Wood furniture; Furniture manufacturing basics; Teaching aid.

Programa integrado de educación especial: Habilidades de capacitación en carpintería mediante el uso de ayudas didácticas

Resumen

Esta investigación tiene como objetivo desarrollar una Ayuda Didáctica, que es Smart Cot, que se incluirá en la asignatura Conceptos básicos de fabricación de muebles presentada por el Ministerio de Educación específicamente para estudiantes con necesidades especiales para el Programa Integrado de Educación Especial basado en problemas de aprendizaje. El método utilizado en esta investigación es el método cualitativo a través de la entrevista, la observación y el formulario de lista de verificación. Los investigadores recomiendan que la ayuda didáctica Smart Cot pueda ser utilizada por los maestros' en el proceso de enseñanza y facilitación sobre el tema Fundamentos de la fabricación de muebles para estudiantes con necesidades especiales a fin de mejorar su rendimiento y dominio de las habilidades para trabajar la madera.

Palabras clave: Educación especial; Muebles de madera; Muebles básicos para la fabricación de muebles; Material didáctico.

1. INTRODUCTION

In Malaysia, the Integrated Special Education Program is divided into several sections because not all students have the same problem or disability. First, students whose biological age does not equal their brain development and who have got (a) learning disability problem that happens due to brain intelligence (AGUS & SAMURI, 2018). These problems consist of various categories such as Down Syndrome, late global development, Autisme, Hyperactivity, Cerebral Palsy, Epilepsy, Emotional Disorders, and Speech Disorders. Students also face problems such as (b) visual impairment and (c) hearing development (PENDIDIKAN, 2017). The children with disabilities will be classified into several levels which are severe, moderate, and mild. The disabled children at a severe level will depend solely on the others for all living management and needs, have a slow level of motor skills, speech, and language. Meanwhile, children at a moderate level can still be trained to be independent on daily living management such as self-hygiene, personal safety, and able to communicate directly. Children in the mild level have got slow mental development, but still can be given the training of daily life management and academic basic skills of 3M (Reading, Writing and Calculating) (AHMAD, 2014).

In particular, the Integrated Special Education Program provides educational opportunities to assist the special needs students to overcome learning difficulties through a motivational approach, using teaching aid and alternative activities. A teacher needs to ensure that special needs students acquire knowledge or skills taught in a particular field. This is to ensure that the special needs students are able to provide the teaching process and facilitation learning effectively and securely in classes and workshops. Therefore, the teachers should have sufficient knowledge, skills, teaching strategies, and abilities to handle a wide variety of special needs students (JUNAIDA & NIK ROSILA, 2014).

According to NASRI et al. (2010), strongly affirms the importance of every child to have differences between the individuals. These differences will cause a variety of education and special education needs to be fulfilled so that every child is able to function with the best effort (CHUA & KOH, 1992). These special needs students should receive the same right to express their demand in education and parents also have the right to determine the type of education that is suitable for their child (MOHAMED, 2005). Therefore, the effective and systematic selection of the learning method in the process of teaching and facilitation has the potential to develop scientific culture, trigger creative ideas and innovations, generate new knowledge, and enhance student potential and contribute information. This process is an important factor to develop future generation (JA'APAR, 2017).

Thus, the usage of appropriate, practical and innovative teaching aid can enhance the knowledge, understanding, learning performance, students' interest, and convey more clear and effective information to students about the related subjects taught by the teachers during the teaching and facilitation process. In addition, the teachers also are able to convey the idea of teaching that is brilliant, effective, and able to

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produce various interesting teaching aid and able to stimulate teaching activity that is more active, creative and effective during teaching and facilitation process (OSMAN & KAMIS, 2019). Indirectly, the application teaching aid in the teaching and facilitation process is in line with MOE's initiative in the implementation of 21st Century Education (PAK-21) in response to the government's aspiration to become a developed country especially in the field of education by 2020 (ABDUL HAMID et al., 2019).

Society often labels the special needs person or *orang kurang upaya* (OKU) as a handicap, disability, or impairment. According to BLACKHURST & BERDINE (1993), handicap refers to a lack or difficulties suffered by the handicapped person to interact or communicate with the environment. Meanwhile, disability means there is a deficiency in function or absence of certain parts of the body and impairment can be defined as the injury of the human tissue. The category of special needs students that are considered able to adapt in the learning sessions is Down syndrome, mild Autisme, Attention Deficit Hyperactive Disorder (ADHD), Attention Deficit Disorder, and Specific Learning Disorder (PENDIDIKAN, 2017).

Therefore, the effort to educate and enhance the ability of students who are categorized as special needs students, the syllabus drafted does not have to be different from the normal students that focus on physical, emotional, spiritual and intellectual development in accordance with National Education Policy (JELAS & MOHD ALI, 2014). However, the method of teaching and facilitation used to educate the special needs students indeed are totally different from the

normal students. They need to be given priority in terms of the preparation of study materials, training, and observations as well as subjects that are suitable for their abilities.

Training that leads to skills is more suitable and necessary for the special needs students. According to RAMLEE (2000), vocational education plays a vital role in the effort to develop the specific skill to obtain jobs for all the students including the special needs students in secondary school. The skill training can be regarded as a transition medium for the students from the school phase to the industry environment. This experience is a preparation for the special needs students to develop their skills and take it as life challenges to be a productive individual. According to DAROS et al. (2012), the special needs students require a psychomotor that is matched with their condition. Moreover, according to KAUFFMAN & HALLAHAN (2005), special education teachers should be sensitive in the process of teaching and facilitating special needs students based on their psychomotor development. This means that the suitable education program is the program that aims at development and enhances the psychomotor of potential students who have got less intellectual ability or are known as students that have learning problems. Consequently, the Special Education program in the field of training skills is very important for them to serve the needs and deficiencies faced by them.

The skills training based on the National Vocational Training Council is an effort of the Ministry of Education to see the special needs students are able to succeed and compete towards the source of semi-skilled manpower. This skill training must be seen as a catalyst

for the purpose of making the special needs students be prepared to face the challenges of life without borders especially in the industry of employment and encourage them to live independently and ready to live with the communities. According to TING (1999), skill-shaped training aims to educate the special needs people to be independent, responsible for themselves, family, and the community around them. Significantly, every human's ability enclosed with a wide range of abilities, and every person of Allah S.W.T creature has the own uniqueness (GREENAN ,1986). Therefore, the training skill needs to be applied to the special needs students to discover the talents and self-potential to be able to sustain in the competitive world of the industry environment after they ended the school phase.

According to TAHIR (2009) explained that the effort of educating the special needs group, the high skills ability should be acquired especially in the technical and vocational fields, are expected to help them to learn more effectively. The teachers for this group should need training that is totally different from teaching the normal students. According to OKAFOR & UDEANI (2012), they discovered the effective techniques for teaching through the presentation activity by the students to enhance their understanding of the subject. According to FRIEND & BURSUCK (1999), among the problems occurred by the special needs students is the sense of intimidating by their own potentials, difficulties in communicating with the peers, problem to adapt with the new environment, sense of challenging competition, not confident to independent, easily to bored and easy to give up. Additionally, the special needs students always feel that the physical and mental conditions are the largest barrier for them to participate in the provided training skills, and eventually make them to fully depend on to the fate and chance. They are also very weak in self-management and always depend on other's help to do something.

2. METHODOLOGY

The research methodology is a data processing procedure derived from a specific and systematic planning process on the concept of establishing a network between the variables involved in study (KERLINGER, 1970). Through this research, the researchers use qualitative methods. The qualitative method is selected because it can generate research findings without involving any calculation procedures thus produce specific data of the study. A case study is a research that is carried out intensively by research on a small unit such as an individual, a family, a village, a class, a school, or a community in detail. Qualitative methods are explanatory in the studied subject (COHEN et al. 2011). Therefore, qualitative is very suitable to be used in obtaining information to make an explanation of a problem, generate understanding and understand the process based on the actual of the informant (CRESWELL, 2013). Detailed experience explanations and information enable the researchers and readers to understand a study from the point of view and understanding of the informants (SILVERMAN, 2013). Moreover, the end of the study explains the qualitative method gives a depth explanation related to the existed research question of the beginning of the research.

Based on the context of this study the choice of research method should be relevant to the research question (CRESWELL, 2014). This is because qualitative is an inquiry process for understanding social problems based on a comprehensive opinion of informants' in-depth views of real situations. On the other hand, the qualitative method is a research method for exploring a natural state to gain in-depth information and understanding of attitudes, emotions, skills, beliefs, behaviors of individuals or groups of individuals (ISMAIL et al., 2015). Hence, the qualitative research method is actually a suitable methodology for conducting in-depth research of a social process [24].

According to CRESWELL [23], researchers need to identify the research needs based on the nature of the informants that include consent for participation in the research field and permission to collect relevant supporting information or data. YIN (2014) suggested that the selection of qualitative methods enables the researchers to gain indepth information about informants in particular on their views and understandings in a given subject.

The process of collecting quality data can be obtained from the meeting sessions with the informant, as researchers give focus on the research questions, the accuracy of the questions highlighted, and the clarity of information provided by the informants. Therefore, research questions can help researchers understand a particular issue (CRESWELL, 2013). Qualitative methods also involve a variety of interpretive and naturalistic possibilities to get an overview of a problem to be studied. Moreover, Qualitative research actually

encourages researchers to think creatively in presenting their research findings (YIN, 2014).

According to COHEN et al. (2011) the qualitative method has the advantage from the view of accuracy and consistency of the information collected when all the research findings need to be triangulated. Qualitative also more flexible in giving researchers the opportunity to carry out various approaches such as narrative research, phenomenology, grounded theory, ethnography, and case studies as each method has its own approach to obtaining quality data in a given study (CRESWELL, 2013).

According to AZMAN & MUSTAPHA (2014), qualitative methods are in the bottom-up. Through the qualitative method of the formulated theory is known as grounded theory. Normally qualitative method used a small size sample between two and 40 people only because the researcher needs specific information from every respondent. Additionally, collecting and analyzing data or information takes a long time and adds the number of respondents will extend the study period (CRESWELL, 2013). The findings of the research are analysed into the narrative and based on verbal communication to describe one's own experiences.

3. RESULTS and DISCUSSION

Table 1 shows the number of Special Education student respondents according to their gender, age, field and category of special needs students selected as the research respondents, a number

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of nine special needs students were selected as the study sample and divided into three categories of students which are three students of 'high capability', three students of 'moderate capability', and three students of 'low capability'. Seven of students are male students and the rest are female. The level of age and field of skills is the same of all selected samples.

Student Category	Number of Students	Student Age	Gender	Field / Skill
Student with high capability	3 students	13 years old	Male	Woodworking
Student with moderate capability	3 students	13 years old	Male	Woodworking
Student with low capability	3 students	13 years old	1 Male / 2 Female	Woodworking

Table 1: Research Sample

Graph 1 shows the results of part 3 which is the cognitive assessment involved with the level of learning is the level to identify the name and function of carpentry tools. There are seven tools and materials of the workshop and two words related to the world of Design and Technology. One of them is a mallet that is used for knocking on wood without damaging the surface of the wood.

The first reading of the graph was blank where students could not identify the name and function of the tool. However, in the second observation, there was a slight increment in the number of students and the reading of the graph continued to increase in the third observation to two students and continued to increase steadily in the fourth to sixth time making it possible for all pupils to pronounce the name and function of the tool.

The second object was a sandpaper that has been used for students to smooth the surface of the wood. The graph shows the consistency of the first observation to the sixth observation where all students were correctly identifying the name and function of the sandpaper. The third object was hand saw that has been used for the students to cut the wood. The graph reading shows the consistency from the first observation to the sixth observation in which are all students could state the name and function of the saw.

The fourth object was a hand drill that has been used to make a hole and also to tighten or loose screws. The graph readings indicate that no student could identify the name and function of the tool. In the second reading, there was an increase in the number of students with two students and continued to increase in the third to sixth observation; thus, all students were able to correctly name and drill functions.

The fifth objects were a screw and a nut that students used to temporarily assemble and tighten two pieces of wood. Graph reading shows zero on the first observation, but on the next observation there was an increase to one student and the graph continued to increase on the third observation with two students. In the fourth to the sixth, it increased consistently and all students could correctly pronounce the name and function of the screw and nut.

The sixth object was the installation by using tanggam method which is a process of combining two pieces of wood without the usage of fasteners. At one reading of the graph shows a blank in which no student could specify the type and function of the installation method. Subsequently, in the second reading, there was one student and the graph continued to increase to two students in the third and fourth, and the graph continued to increase to three students in the fifth and sixth trials.

The seventh object was a wood which is the basic structure to making teaching aid Smart cot. The graph reading shows consistent state from the first to the sixth trials in which all students could give correct answers on the main material to produce teaching aid Smart cot. The eighth and ninth items are the words of DIY and innovation. DIY is an acronym for 'Do It Yourself' which means the product that can be made without any aid from others. Meanwhile, innovation means improving an existing product. The graphs for both words show a consistent state of being from the first to the sixth that no one could say and interpret the word.



Graph 2 shows the results of section 3 of Cognitive Assessment involving the level of learning which is the level to identify the name and function of tools and wood materials. There are seven tools and materials used to install teaching aid Smart Cot and two words that are related to the world of Design and Technology. First, the mallet which functions as a tool knocking wood without damaging the surface of the wood. From the first to the third it shows a blank graph where students could not specify the name and function of the tool. However, in the fourth to the sixth, there was a slight increase in the consistency of one in three students who could identify the tool.

4. CONCLUSION

Research conducted the findings shows that existing research questions have answered all the problems regarding teaching aid Smart cot products. With the development of the teaching aid Smart Cot product, teachers will be able to practice special needs students'

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psychomotor, intellectual, and emotional skills when the students perform woodworking practical tasks. The idea of a Smart Cot product is when looking at the unused wood products due to the temporary usage of it. Therefore, once it has been used as a baby bed and it can be continued to be used for children's study table. The second function of the children's table is designed along with the development of children who are in need of furniture such as a table for a comfortable and conducive learning process at home. Therefore, this product can also be marketed for improvement in terms of commercial value, strength, and durability of the product. Thus, integrating various functions into the product can bring creative value and innovation into student learning.

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