A Conceptual Framework to Design and Develop Creativity Clay Module to Teach Special Educational Needs (SENs) Students with Learning Disabilities in Primary School

Parthiban Govindasamy[1], Noraini Binti Abdullah[2], Rohaizat Binti Ibrahim[3] & Yoong Soo May[4]

[1,2,3,4]*Department of Special Education, Faculty of Human Development, Sultan Idris Education University, Malaysia.*

Corresponding Author: Parthiban Govindasamy, **Email:** rthiban89@gmail.com

ABSTRACT

This paper presents a conceptual framework for design and develop Creativity Clay Module to teach Special Educational Needs (SENs) students with learning disabilities in Special Education Integration Program (SEIP) in Malaysia primary schools. The Creativity Clay Module will be designed especially for students with learning disabilities based on Torrance Creativity Theory, Constructivism Theory, and Sidek's Module Development Model. Thus, this paper presenting literature review on Creativity, Clay, Torrance Creativity Theory, Constructivism Theory, Sidek's Module Development Model, Design and Development Research (DDR), Fuzzy Delphi Method (FDM), and SENs Students with Learning Disabilities. Literature review evidenced SENs students with learning disabilities are poor in creative skills. Therefore, there is a need to develop a specific teaching module for SENs students with learning disabilities to cultivate their creativity skills through teaching and learning. Thus, this study aims to present a conceptual framework to design and develop Creativity Clay Module. This study will employ Modified Design and Development Research (DDR) approach. There are three phases in this approach namely; phase one: need analysis; phase two: design and develop; and phase three: evaluation. After gone through the three phases of DDR, researcher will produce the Creativity Clay Module as end product. This Creativity Clay module is able to nurture creativity skills among SENs students with learning disabilities in primary school.

Keywords: Creativity Clay, Special Educational Needs (SENs), Special Education Integration Program (SEIP), Design and Development Research (DDR), Fuzzy Delphi Method (FDM)

INTRODUCTION

Special Education aims to meet the educational needs of SENs students with visual impairments, hearing impairments, speech impairments, physical disabilities, learning disabilities, and various disabilities at the preschool, primary, secondary, and post -secondary levels. The first shift in Malaysia Education Blueprint (MEB) 2013-2025 is providing an equal access to quality education of an international standard. In line with that, the government seeks to upgrade the formal education system to SENs students by introducing Special Education Programs such as the Special Education Integration Program (SEIP) and the Inclusive Education Program (IEP). Though, UNESCO identifies developing countries have individuals with disabilities on average 10 % of the national population (MEB, 2013-2025). According to the Special Education Division, Ministry of Education Malaysia (MOE, 2021), the official data of SENs categories with learning disabilities in Malaysia increased continuously from 2017 to 2021. Based on Special Education Data 31 October 2021, founds a total of 97,220 students categorized as SENs in Malaysia. There are 79,921 number of SENs students categorized as learning disabilities, which is 82 % of the total SENs (MOE, 2021). In this case, government had taken initiative to increase the investment in physical and teaching resources for SENs students with specific needs (MEB, 2013-2025). In line with that, SENs students with learning disabilities should be given priority and teachers have to ensure that every student with learning disabilities had the chance to learn according to their needs (Yahya et al., 2019). Thus, SENs students with learning disabilities are not to be left behind in accepting the existing education system in line with mainstream students as provided by MOE (Kama Shaffeei, 2019).

The 21st century has witnessed a rapid change and transformation in almost all aspects of humans' life. The new norm has increased attention by educators and researchers to fostering creativity as an imperative 21st century skill (Istiq'Faroh, et al., 2020). Educators need to cultivate creativity skills to help their students to be more productive and successful (Um Albaneen Yusuf Jamil et al., 2019). The United Nations Children's Fund (UNICEF, 2015) has designated creativity skills as the first skill out of 12 core skills for life, that children need to develop from an early age in an effort to transform education through life skills and citizenship education. Moreover, creativity skills were identified as a catalyst for innovation in the International Student Assessment Program (PISA) 2021 by the Organization for Economic Cooperation and Development (OECD, 2019). Thereby, creativity skills are given a priority in future transformative competencies (Vincent-Lancrin et al., 2019). In this regard, creativity skills

need to be nurtured among students with SENs in primary schools, especially students with learning disabilities as early preparation for the transition to secondary school to master technical and vocational education (Norfarahi et al., 2020). Therefore, this study aimed to present a conceptual framework for design and develop *Creativity Clay* Module to teach SENs students with learning disabilities in primary school.

LITERATURE REVIEW

The literature review includes Creativity, Clay, Torrance Creativity Theory, Constructivism Theory, Sidek's Module Development Model, Design and Development Research (DDR), Fuzzy Delphi Method (FDM) and SENs Students with Learning Disabilities.

Creativity

Creativity is producing or creating something new and in a unique way (Torrance, 1970). Whereas, creativity is defined as the ability or capability to create original creative power as well as develop new ideas and accordingly (Shen et al., 2021). Moreover, creativity is the ability to produce a work that has 'novelty' or has new elements in the work as well as original ideas, not expected by others and appropriate (Zhou Kai, 2018). Meanwhile, also stated that creativity is the ability (Sugita et al., 2021; May et al., 2021; Yoong et al., 2022).

Creativity skills can improve academic performance and develop children's talents as well as build innovative thinking processes (UNICEF, 2015). Creativity skills are the ability or capability to produce something new and useful (Shen et al., 2021). Nowadays, creativity skills are no longer optional skills whereas creativity skills become a necessity for the younger generation (Agnoli et al., 2018). Apart from that, creativity is an important skill to solve a problem creatively and innovatively in order to achieve the Sustainable Development Goals (SDGs) set by the United Nations (UNESCO, 2015).

However, not all individuals able to present their creative skills. Creativity is a set of complicated cognitive skills and personal dispositions that give rise to novel ideas or products and helps people to solve problems (Gao et al., 2020). Therefore, creativity skills need to tailored among students during teaching and learning through creative teachers' teaching strategies (Adibah & Hafizhah, 2021). Creativity is something that can be taught and trained (Sun et al., 2020). As evidence, the study shows creative teaching strategies able to succeed the goal of teaching and learning in the classroom (Egan et

al., 2017). Creativity skills are able to generate creative ideas to find alternative paths for SENs students with learning disabilities by marketing their creative ideas (Widoyoko et al., 2018). Therefore, the teaching and learning process should embedded with creative skills for SENs students with learning disabilities in line with Malaysian education development agenda (Malaysia Education Blueprint [MEB], 2013-2025).

At the same time, creativity skills are crucial to master technical and vocational skills in preparation for the world of work as well as to meet future needs (Anizam et al., 2020). Though, the findings of previous studies related to creativity have shown low level of creativity among students (Bulut et al., 2022; Istiq'Faroh et al., 2020; Salbiah & Roslinda, 2017). Besides that, studies indicated there are weakness among students in presenting creative skills in the classroom. In this study, creativity means the ability and capability of SENs students with learning disabilities in producing original ideas, unique products, producing many ideas and developing creative ideas into something different.

Clay

Clay is something uniquely sourced from the earth (Hansen, 2018). There are several types of clay included oil-based clay, water-based clay, polymer clay, dough clay, ceramic clay, paper clay and air-dry clay. Based on the context of this study, the researcher used clay made by the country of South Korea. Researcher founds there are some uniqueness in Korean Air-dry clay through observation. Korean Air-dry clay has several advantages such as it is; (1) safe and environmentally friendly; (2) has quality certification; (3) has nano-silver content acts as a disinfectant agent during kneading; (4) no need to burn; (5) mess-free; (6) harmless and passes food safety regulations; (7) has a natural drying agent in the air; and (8) has the aroma of jasmine herbs. Therefore, this clay is very suitable and safe to use by students in schools. However, to the best knowledge of the researcher there is no any modules found to cultivate creativity skills among SENs students with learning disabilities using clay as a tool in education. Therefore, the researcher choose clay as a tool to use in the Creativity Clay Module.

Torrance Creativity Theory

According to Torrance, creative thinking is an aspect of an individual's success and the level of creativity found in a person can be measured. Additionally, he stated that creative thinking skills can be improved in an individual through continuous practice. The implications of this theory of creativity have

proven that an individual achieves success through practice in thinking creatively on a daily basis. Thus, the theory of creativity pioneered by Torrance (1962). Torrance has prioritized the practice of an individual in thinking creatively. An individual is capable of generating creative ideas if their practice is able to trigger creative skills. Not only that, Torrance also stated seven main things that can generate creativity skills in an individual. The seven elements outlined by Torrance (1974) to generate creativity skills are as follows: (1) questioning, (2) discovery, (3) observation, (4) experiment, (5) exploration, (6) manipulate, and (7) activities/ play.

Torrance's findings show that creative ability is the ability to generate a variety of ideas either verbally or non-verbally as well as allowing free association related to ideas and thoughts (Fluency). Torrance stated creative ability exists by exploring a variety of ways to approach a problem or solution and looking at a situation from a variety of perspectives (Flexibility). This creative ability is also having a new idea or producing something unique, putting a new stamp on something that already exists (Explanation). Thus, Torrance has also identified four components of creativity as an indicator to measure the level of creativity of a student (Torrance, 1974). There are (1) fluency, (2) flexibility, (3) originality and (4) explanation. According to Torrance, these components can be used as criteria to measure the level of creative and evaluate the quality of work produced by students. In this study, the four components and the seven elements highlighted by Torrance will be used to develop the Creativity Clay Module. The contains and the activities in the module structured based on the four components and seven elements to generate creativity skills among SENs students with learning disabilities.

Constructivism Theory

Constructivism theory shapes students to play a role as builders of knowledge and no longer recipients of knowledge. Based on constructivism theory, a student constructs new knowledge about a topic or content studied by relating experiences or existing knowledge through the environment and learning (Nidzam, 2016). Thus, the role of the student is as a builder of knowledge rather than a recipient of knowledge imparted by a teacher or friend. At the same time, Piaget stated that the ability to manage information and knowledge occurs in stages. The process of managing information and knowledge in the cognitive structure of the human brain occurs with existing schemas. Thus, the process of adaptation, assimilation and accommodation takes place in stages to build new knowledge through existing experience.

The theory of constructivism put forward by Lev Vygotsky contains two important concepts namely the Proximal Development Zone (PDZ) and the scaffolding technique. Vygotsky argues that a student can easily master the content of a lesson presented by a teacher if the content of the lesson is based on an existing scheme through experience. Therefore, the concept of PDZ presented in the theory of constructivism is very helpful to organize learning activities or tasks that are appropriate to the level of mastery of students by taking into account the existing experience of students (Dagar & Yadav, 2016). Vygotsky put forward scaffolding techniques in constructivism theory to help and facilitate students to follow learning content through a process of guidance and assistance from teachers or peers in the PDZ. Scaffolding technique is a very good and suitable technique to apply for SENs students with learning disabilities to mastery in the learning process (Boyle et al., 2016). On the other hand, scaffolding is a technique that emphasizes the provision of help or concern of teachers to students in the early stages of learning, then teachers need to reduce the help given in stages (Slavin, 2006). This gives the student the opportunity to take full responsibility for the assigned task. In addition, scaffolding techniques also help students to actively engage in learning sessions as well as solve problems encountered with the help of teachers or friends. Not only that, the help given by a teacher or friend can be a guide, give encouragement, reminder, elaborate problems, give examples to understand the content of learning as well as constructive positive actions for students to learn on their own. This phenomenon builds a student to follow the Concept of Self -Learning.

In this study, the PDZ process and scaffolding techniques became an important aspect to be applied in the development of Creativity Clay Module. PDZ in this study means that SENs students with learning disabilities are in a zone that can complete the task provided with the help and guidance of special education teachers during the learning process. Then, SENs students with learning disabilities able to follow the learning process by self -access using a QR code or YouTube link provided at the end of each learning unit. For example, the links provided in each learning unit can help the SENs students with learning disabilities to access more information such as new ideas, how to produce creative and innovative products and so on to complete learning tasks independently. At the same time, scaffolding techniques can occur while special education teachers assist and guide SENs students with learning disabilities to follow the lessons in the Creativity Clay Module.

Sidek's Module Development Model

Sidek's Module Development Model was used in the design and development phase of the Creativity Clay Module. Sidek Mohd Noah has presented a more comprehensive integration model in building modules according to certain stages. The Sidek's Module Development Model has two important stages and has different purposes in developing a module. The first stage is: (1) the stage of preparing the draft of the module while the second stage (2) the stage of testing and evaluating the module. The first stage, which is the stage of preparing the draft of the module, has nine steps as follows; (1) goal building; (2) identify theories, rationales, philosophies, concepts, targets and time periods; (3) needs assessment; (4) set objectives; (5) content selection; (6) strategy selection; (7) logistics selection; (8) media selection; and (9) consolidate the module draft.

The second stage in the Sidek's Module Development Model is the module testing and evaluation stage. The testing and evaluation stage is divided into three steps as follows; (1) pilot study; (2) testing validity, reliability and norms; and (3) effectiveness evaluation.

Sidek's Model Development Model also requires the researchers to determine the theory, rationale, philosophy, concept, target and time period in the construction process of a module in advance. The appropriate theory or model is very important because it is the backbone to the strength of a module produced (Sidek Noah & Jamaludin, 2005). The researchers need to determine the appropriate theory or model to underlie the study or construction of the module. The selection of a theory or model to build a module can guide researchers to be systematic as well as more specific. In addition, the Sidek's Module Development Model prioritizes need assessment study before building a module. A need assessment should be conducted by the researchers to find out whether there is a need or not to build a module. The needs assessment ensures that a module is built according to the needs of the target group and avoids being intentionally built. Indirectly, this can ensure that the modules built meet the needs of the target group as well as possible.

Design and Development Research (DDR)

DDR is systematic research by building an empirical basis on the production of a product or equipment through the process of design, development and evaluation. DDR is a systematic study for the creation of instructional and non-instructional products (Richey & Klien, 2007). The methodology in the DDR approach is organized systematically according to each phase and guided by the objectives and research questions set in a study. Nevertheless, the DDR approach uses both quantitative and qualitative methods

based on the objectives of the study and the research questions to determine the appropriate method in each phase. Thus, DDR is an approach that encompasses a variety of systematic methodologies (Saedah Siraj et al., 2020). In this study, researcher uses Modified Design and Development Research Approach presented by Saedah Siraj. The Modified Design and Development Research Approach specifically for research in the field of education which includes three main phases namely (1) need analysis phase, (2) design and development phase, and (3) evaluation phase (Saedah Siraj et al., 2020).

Fuzzy Delphi Method (FDM)

FDM is a combination between the Fuzzy Numbering Set and the Delphi method (Ridhuan & Nurulrabihah, 2020). Therefore, the FDM is an effective measurement method to solve problems, especially problems related to ambiguity and uncertainty of researchers in a study conducted. Hence, FDM is flexible measuring method which can be used in researches to make decisions and consensus (Ridhuan et al., 2019). Additionally, this FDM is able to process item-related ambiguities, predictions and information content from experts. Moreover, this method can determine the characteristics of the experts involved through the determination of expert selection criteria (Chang et al., 2011). There are two important aspects in the FDM are Triangular Fuzzy Number and Defuzzification Process (Ismail et al., 2019). FDM is able to obtain experts' consensus through quantitative method in a study (Yoong & Ahmad, 2020). In this study, the researcher chooses 15 experts based on the expert selection criteria to design and develop Creativity Clay Module to teach SENs students with learning disabilities in primary school.

Special Educational Needs (SENS) Students with Learning Disabilities

Pursuant to the Education Act 1996, Education (Special Education) Regulations Part 3, "Students with Special Needs" means a student certified by a medical practitioner, optician, audiologist, or psychologist as a student with visual impairment, hearing impairment, speech impairment, physical disabilities, learning difficulties or a combination of any disabilities and problems faced by students with SENs. According to the Special Education Code of Practice (2014) published by the Special Education Division, Ministry of Education Malaysia, SENs students with learning disabilities defined as students with brain intelligence that is not consistent with their biological age such as Late Global Development, Down Syndrome, Intellectual Disability and conditions that affect individual learning ability such as Autism, Attention Deficit Hyperactivity Disorder (ADHD) and Specific Learning Difficulties such as

Dyslexia. Besides, Department of Development of People with Disabilities, the Department of Social Welfare (2011) stated learning disabilities is learning problems as a brain intelligence that is not consistent with its biological age. Those who fall into this category are students with global developmental delays, down syndrome and intellectual disabilities, conditions that affect an individual's learning ability such as autism, ADHD, specific learning problems such as dyscalculia, dyscalculia and dysgraphia. In this study, this Creativity Clay Module will be used by special education teachers to teach SENs students with learning disabilities in Special Education Integration Program (SEIP) in primary school.

CONCEPTUAL FRAMEWORK

A conceptual framework is able to construct correlations and relationships between the variables in the study (Adom et al., 2018). The conceptual framework can provide an initial insight in developing the Creativity Clay Module to teach SENs students with learning disabilities. Figure 1 shows the Conceptual Framework of this study.
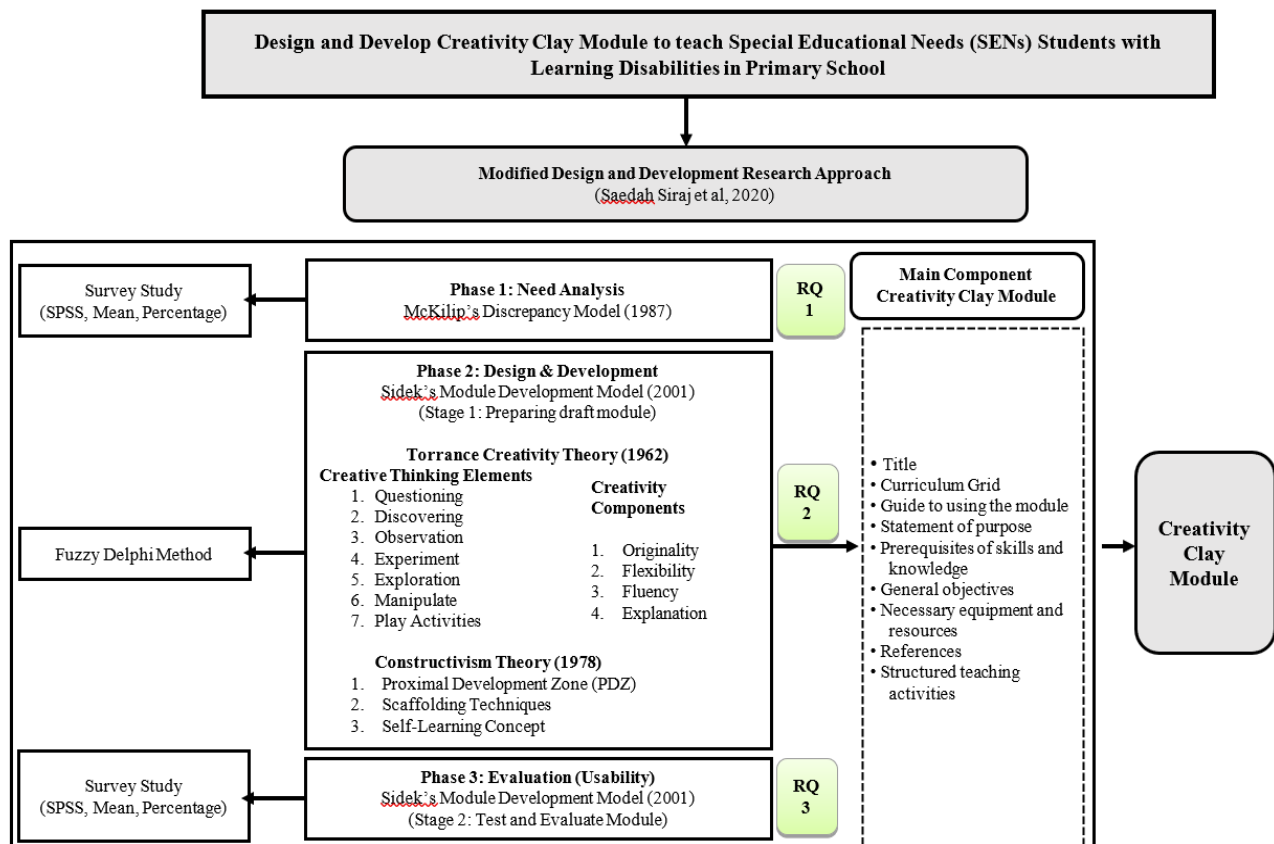

Figure 1. Conceptual Framework

Conceptual framework was designed systematically in order to facilitate the researcher to achieve the objectives of the study. After going through these processes, the researcher able to develop a Creativity Clay Module to teach SENs students with learning disabilities in primary school. The Creativity Clay Module will be designed and developed based on two theories and one model, namely Torrance Creativity Theory, Constructivism Theory, and Sidek Module Development Model. Modified DDR will be used as the research approach to develop Creativity Clay Module (Saedah Siraj et al., 2020). The DDR approach has three main phases namely, the Need Analysis Phase, the Design and Development Phase, and the Evaluation Phase. Therefore, each phase has specific research objectives and research questions. The researcher has described the process and how to collect data for each phase. Each of these phases has a theory or model to conduct the research systematically.

The phase one is need analysis phase. During the phase one, the researcher uses McKilip's Discrepancy Model (1987) as a model to conduct the needs analysis. This phase aims to gather information related to needs of the development of the Creativity Clay Module from 110 special education teachers through a survey study. The survey study will be conducted with a questionnaire instrument. The data collected will be analyzed using Statistical Package for Social Sciences (SPSS) 25.0 software. Descriptive analysis will be used, data will be analyzed with means score and percentage. Meanwhile, the phase two is the Design and Development phase. This phase aims to design and develop the Creativity Clay Module. Therefore, the researcher uses Sidek's Module Development Model (2001) as the model in this phase. The researcher will carry out FDM with 15 experts. Researcher select the experts in the field of special education based on the selection criteria. In this phase, researcher able to obtain experts' consensus on the main components and determine the elements in the components according to priority in this module. Researcher uses a questionnaire instrument with seven-point Likert scale to obtain consensus from experts.

Next, the phase three is the evaluation phase. This evaluation phase aims to evaluate the usability of the Creativity Clay Module by the special education teachers who are the users of this module. Therefore, the researcher uses the second stage of Sidek's Module Development Model (2001) in this evaluation phase. The second stage is to test and evaluate the module. The researcher will conduct a survey study by using a questionnaire instrument to obtain the usability of the Creativity Clay Module. The data of the study will be analyzed using SPSS 25.0 software. Descriptive analysis will be used, data will be analyzed with means score and percentage. After conduct these three phases, Creativity Clay Module

will be developed completely. Hence, the special education teachers can use the Creativity Clay Module to teach SENs students with learning disabilities in primary school.

METHODOLOGY

In this study, reviews of relevant literature are the main methodology in this study. The review of literature conducted through books and article journals. The initial step was to analyses related papers and try to relate Creativity skills and SENs students with learning disabilities. Then, researcher search literature reviews on Creativity, Clay, Torrance Creativity Theory, Constructivism Theory, Sidek Module Development Model, DDR, and FDM to design the conceptual framework. Within this process, relevant articles were sought from search engines including Science Direct, Taylor & Francis, Sage Publications, Emerald Publishing and some of the journals were also assessed and downloaded at trusted sites such as ResearchGate and Google Scholar. Keywords such as 'creativity skills for students with learning disabilities, 'clay therapy', 'torrance creativity theory, 'constructivisme theory', 'sidek module development model', 'design and development research, and 'fuzzy delphi method' were used in the process of searching articles.

These efforts resulted in the identification of 1781 articles. The inclusion and exclusion criteria were used during the screening process. Inclusion criteria namely; (1) Article period between 2018 to 2021; (2) Articles related to creativity in primary education; (3) Article type specific to review paper and research paper; (3) Only article in English language selected. Meanwhile, exclusion criteria were used namely; (1) Duplicated articles with same author and topics excluded; (2) Creativity in secondary and tertiary education and other areas excluded. However, only 152 articles remained after the second stage of the screening process. Then, third stage of screening process was conducted. Resecher identified 20 articles related to creativity skills and SENs students with learning disabilities while the remainder were related to creativity in education in general. Most of the selected articles focused on the importance of creativity skills for mainstream students while a small number of articles related to creativity skills for SENs students with learning disabilities. A total of 20 articles were identified as the main references on creativity skills and SENs students with learning disabilities, while the remaining articles provide supportive information on creativity skills, DDR approach, theories and models.

DISCUSSION AND CONCLUSION

In this study, literature review had been made on Creativity, Clay, Torrance Creativity Theory, Constructivism Theory, Sidek's Module Development Model, DDR, FDM and Students with Learning Disabilities. The researcher had designed a conceptual framework to design and develop Creativity Clay Module. This study will employ DDR as the research approach. Therefore, this study is divided into three phases namely needs analysis, design and development, and evaluation. Phase one, the data collected from survey study using a questionnaire instrument. The data from needs analysis will be analyzed by using SPSS 25.0. Descriptive analysis will be conducted with means score and percentage. Phase two, FDM will be employed by obtaining consensus from 15 experts in the field of special education. Meanwhile, the usability of the module in phase three will be carried out by using survey study with a questionnaire instrument. The data collected will be analyzed by using SPSS 25.0. Descriptive analysis will be conducted with means score and percentage. Hence, this study will produce an end product entitled Creativity Clay Module to teach SENs students with learning disabilities in primary school.

LIMITATIONS OF THE STUDY

This study limited to certain aspects. First, the data were collected from special education teachers who are taught in Special Educational Integration Program (SEIP) in government national primary schools. Future research may include private schools and Special Education Schools to collect the data. The difference schools from different backgrounds could yield difference results to indicate the needs of creativity skills among SENs students with learning disabilities. Secondly, the end user of this Creativity Clay module is special education teachers who taught in SEIP in primary school and the SENs students with learning disabilities. Further efforts or study can be conducted to adapt this Creativity Clay module to other special educational needs student in primary school.

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