



The Development and Assesment Talent Mapping E-module for Elementary School

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Abstract: The development of students' creativity should be adjusted to their talents so that teachers at schools need to have guidelines for mapping children's talents. This study is conducted to develop and asses the E-module on mapping the talents of elementary students in Aceh. The Design Development Research (DDR) research uses the Alessi and Trolip instructional design model involved 3 experts, 9 PGMI lecturers and 15 MI teachers in three PTKIN in Aceh. The research instrument is a questionnaire which is analyzed by alpha and beta testing using descriptive analysis. The results of the alpha and beta assessments show that the mean assessment of MI experts, lecturers, and teachers is at a high stage (more than 4.0). Thus, it can be concluded that the talent mapping E-module for elementary students is suitable to use in elementary schools. For further research, it should be able to develop a talent mapping E-module for high school level and is able to be developed using learning technology in the form of E-learning.

INTRODUCTION

Education is the most essential part of a child maturation in the hope of achieving the educational goals that have been formulated (McNeal et al., 2017; Menendez et al., 2020; Spiel et al., 2018). Children aged 6-12 years are the main objects in the teaching and learning process in elementary schools (Antara, 2015; Isfiani et al., 2013). Therefore, attention to the application of education, particularly in elementary level, has become the shared focus of all educational stakeholders (E. M. Hines et al., 2020; Riggs & Langhout, 2010). Thus, learning activities must adapt to the phases of children's cognitive development (Sugarman, 1990). It have to be intacted in cognitive, affective and psychomotor (Pradani, 2011).

In this regard, Atabik, (2018) says that education is the process of all human abilities (talents and abilities acquired) influenced by habituation and perfected by good habits. In developing talent of elementary school students, teachers in schools need to know each talent of their students and the special ability they have in order to provide the experience required by each child to develop their talents significantly in accordance with educational goals (Gandara et al., 2005; Stratton & Reid, 2004). However, the problems that teachers face include (1) pay attention to student differences in learning and their willingness and interests. Interest is a benchmark in achieving student goals (Friantini & Winata, 2019); (2) observing students who are fast and slow in learning as well as students who are good and not good

(Kau, 2017). Therefore, elementary school (SD/MI) teachers have to be professional, creative, and innovative in solving various problems for student, one of which is the development of student's talents and interests which are expected to increase their creativity (Iskandar & Zulela, 2021; Munastiwi et al., 2021).

Based on this, teachers have a significant role in developing children's talents and interests, one of which are created from the teaching and learning process (Jayantika et al., 2013; Situmorang et al., 2021). Talent development is an innate ability which is a potential that still needs to be developed and trained in order to be realized. Talent requires special training, education and services so that an action can be carried out in the future (Khairudin et al., 2020; Lena et al., 2020). Developing student talents, it is necessary to map children's talents. Talent mapping is a crucial initial stage and determines the success of the human resource development process in the talent management (Situmorang et al., 2021).

Gardner affirms that there are seven types of multiple intelligence in talent mapping, including; language/linguistic; mathematical logic; intrapersonal; interpersonal; musical or musical; visual and spatial; kinesthetic (Gardner, 2003). However, in previous research conducted in 1990 Gardner added the eighth intelligence, namely naturalist (Gardner & Museum, 1990).

According to the theory of multiple intelligence, there are several things to a headline: (1) everyone has all eight of intelligence, but everyone's profile has a different side. Some people are a high rate in all types of intelligence, while other people are only taking an average spot and merely high in two or three types of intelligence; (2) each people can enhance their intelligence to be a master; intelligence can be stimulated and developed to the highest extent properly, through good support, and teaching; (3)

intelligence generally works in complex ways. In daily activities, intelligence is related to each other: kicking a ball (kinesthetic), orienting self on the field (spatial), and protesting (linguistic and interpersonal); (4) there are many ways to be intelligent in each category. A person who is linguistically intelligent may not be good in writing. However, in contrary, he probably has a performance speaking impressively (Gardner, 2003).

Thus, it can be comprehended that Howard Gardner's theory of multiple intelligence talent emerges the concept that people have different intelligence, including: (1) Linguistic, the ability to arrange words and language; (2) Mathematical Logic, the ability to use logic especially related to mathematics; (3) Musical, the ability to create the music; (4) Kinesthetic, the ability to control body movements; (5) Spatial, the ability related to visual perception; (6) Interpersonal, the ability to relate to and understand people; (7) Intrapersonal, self-understanding; (8) Naturalistics, the ability to understand the elements in the natural environment (Gardner, 2003).

There are several stimulations that can be done for mapping children's talents, namely: A) creating an environment that stimulates children's curiosity by introducing them to various things. B) involving children in brainstorming activities; C) providing an opportunity to explore; D) emerging internal motivation; E) developing thinking flexibility (Pradani, 2011; Utomo et al., 2019).

Furthermore, Lena et al. (2020) affirmed that there are three levels of talent conception, comprising of Level I, innate ability or potential which is an important component but does not ensure superior performance; Level II, innate talent needs to be nurtured, trained and developed so that it can be realized and hard work is needed for it; Level III, talent is already the real talent and high-level of outstanding performance. Given

the importance of developing the talent of elementary school students, teachers need to develop student's talent to increase their creativity.

It is an accordance with several previous research that talent determines a person's achievement (Jayantika et al., 2013). Talented people are expected to achieve high achievements in their respective fields (Anwar et al., 2012). The right stimulus has an impact that can generate interest and talent from within students. A prominent achievement in one of the fields reflects a superior talent in that field but takes practice, knowledge, experience and encouragement to realize the talent (Antara, 2015; Isfiani et al., 2013; Lena et al., 2020).

There was a gap from previous research, in which previous research focused on certain talent such as numerical talent, mechanical talent and sports talent and the researcher carried out was not given an intervention using e-module. Meanwhile, this research is not limited to the development of certain talents only, but maps all talents possessed by children by producing E-module that can be used as a guide for teachers in the schools, especially elementary schools so that teachers can provide good service in teaching and can develop children's creativity. Apart from that, so far it has also been found that there is no talent mapping e-module in elementary schools or in bookstores as a guide for teachers in increasing student creativity as expected by the 2013 Curriculum. From these problems, this research focuses on talent mapping for

research, which is expected to increase student creativity. Therefore, research using the Akath Mapping E-module needs to be carried out to assist teachers in increasing the creativity of elementary school children. In addition, it has also found that there is no talent mapping E-module in elementary schools or in the bookstores as a guide for teachers in increasing student creativity as expected by the 2013 Curriculum. The next gap from previous research is analyzed based on talent achievement (actual ability), capacity (potential ability), and aptitude (nature and quality), while the talent development process should not only focus on results but also results from the learning process in the classroom, so alternative E-modules are the right solution. Based on these problems, this research concerns on mapping talents expected to increase students' creativity. Therefore, this research using the root mapping E-module needs to be carried out to assist teachers in increasing the creativity of elementary school-age children.

METHOD

The design used in this study is the Design Development Research (DDR) approach (Rita et al., 2014) with the instructional design model of Alessi and Trolip. The development of the talent mapping e-module was developed based on the Alessi and Trolip model using three phases, namely (1) the planning phase, (2) the design phase, and (3) the development phase.

Table 1. Research Methodology based on the Main Research Phases

Research Purposes	Research Participant	Method	Instrument
Rate E-module child	3 experts	Expert assessment	Instrument
talent mapping aged	9 PGMI lecturers	Alpha Analyze	Instrument
6-12 in Aceh	15 MI teachers	Betha Analyze (User)	Questioners Instrument

The development of this E-module was carried out based on the results obtained from the needs analysis phase that had been carried out previously and

involved nine talent theories (Gardner, 2003), talent mapping in elementary schools, and expert comments (experts). The subjects of this study were three

experts, nine PGMI lecturers in three PTKIN Aceh, and 15 MI teachers.

This development research uses a questionnaire. After the talent mapping e-module was designed, it was then assessed by experts, PGMI lecturers in three PTKIN Aceh and 15 MI teachers. The design of the talent mapping E-module that is assessed includes cover (packaging), images, video, audio, animation, layout, talent theory, e-module text, materials, talent mapping activity sheets.

All data obtained from the E-module assessment were analyzed using descriptive analysis. Furthermore, the mean value refers to Nunally & Bernstein (1994) where the mean value is 1.0 - 2.0 = very low, 2.0 - 3.0 is low, 3.0 - 4.0 = moderate, and 4.0 - 5.0 = high. As for the evaluation of the E-module, the eligibility criteria used are in accordance with Wagiran's criteria (2014) with categories, 25.00 - 43.75 = not feasible, 43.76 - 62.50 = less feasible, 62.51 - 81.25 = feasible, 81.26 - 100 = very feasible (Wagiran et al., 2014).

Table 2. Rate E-module Child Talent Mapping Aged 6-12 in Aceh

Profil	Institute	Development E-module	Education Stage (SD/MI)	Talent Mapping
Expert	MIPA	√		√
Expert	Talent Home	√		√
Expert	UNSYIAH	√	√	√
Lecturer	Ar-Raniry State		√	√
Lecturer	Ar-Raniry State		√	√
Lecturer	Ar-Raniry State		√	√
Lecturer	Langsa Institue		√	√
Lecturer	Langsa Institue		√	√
Lecturer	Langsa Institue		√	√
Lecturer	LSM Institute		√	√
Lecturer	LSM Institute		√	√
Lecturer	LSM Institute		√	√
15 Teachers	Langsa, LSM, Banda Aceh			

RESULT AND DISCUSSION

The Development Prototype E-module

This research produces a product of the Talent Mapping E-module for elementary school. E-module has designed interactively (soft and hard) So that students can access it independently and is able to respond to commands from its users. E-module has developed following the Alessi and Trolip model with stages of (1) planning, (2) design, and (3) development.

Planning. One of the first steps to develop a product is needs-analysis. In this case, the case that the researchers opened out was direct observation and interviews with teachers in MIN 11 Banda Aceh. At the time of observation and interviews at that school, several problems were found, including the teacher's lack of detailed knowledge of

each child's talent due to limited guides (E-module) that explain children's talents. Based on these problems, the next step taken in this stage is to look for literature references related to the development of talent mapping for elementary school-age children in the form of books, journals, and articles.

Design. The second stage is designing E-module. At this stage the presentation of material in e-module really needs attention. In presenting the subject, it must contain the criteria for correct E-module writing rules. E-module is designed to be as attractive as possible by containing animation, so that it should allow teachers and students to read directly, contains talent activities, and contains videos about talents which make students able to better understand the

material that has been conveyed by the teachers.

Development. The third stage is the development of the E-module. Third stage, the development steps that must be carried out are: the first, it is to make a

concept map; and the second, it is to compile a talent mapping E-module draft for SD/MI. The following is a draft of the Talent Mapping E-module in the form of constituent components in the e-module.

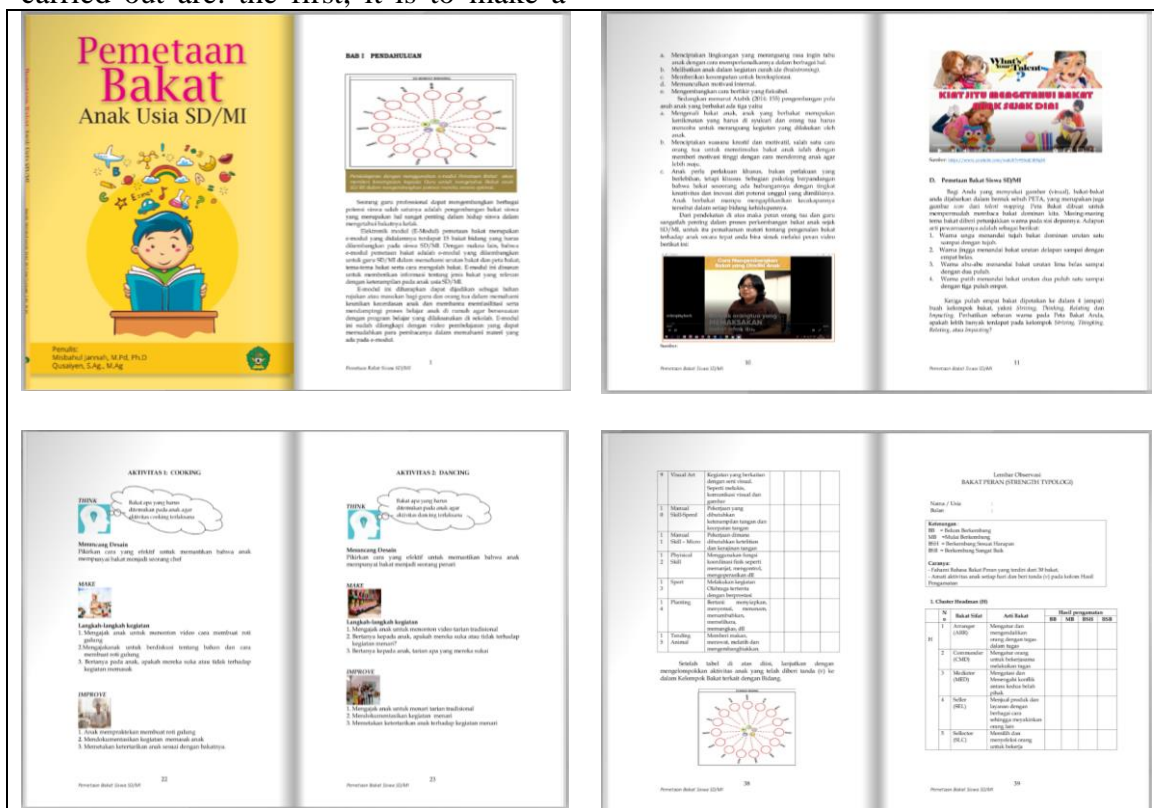


Figure 1. E-modul Product (See more: <https://online.anyflip.com/kmkpj/yxnp/mobile/>)

The cover design was revised based on input from the validators namely experts, lecturers, and MI teachers. On the top, there is an inscription “Talent Mapping of SD/MI” whose positioning has been revised. The cover contains an image that defines the content of the material, which is about the types of children's talents. In the lower right corner, there are the names of the constituents of the E-module, while in the lower left corner there is the logo and name of the composing university. There are changes to the cover of the talent mapping E-module based on suggestions and input from the validator.

The introduction contains a description of the E-module which explains the general description of this E-module. In the introduction, an overview

of the E-module is explained which includes E-module framework, E-module implementation process with a constructivism approach and the I-CARE model, guidelines for using the E-module and an outline of the e-module activities. In this introduction there are no changes, in other words the validator agrees with the contents of the introduction that has been made. The material is the contents of the entire material in the talent mapping E-module. The material has no revision from the validator. Talent mapping activity is student worksheets that contain field talent development activities by involving students in the talent development process. Learning videos are videos related to talent mapping material downloaded from YouTube. In this video, there is no revision from the validators.

The development of the Talent Mapping E-module uses the Alessi and Trolip, instructional design models, by considering several aspects such as talent mapping theories and basic elements in E-module development. The Alessi and Trolip models are chosen because they are more suitable to be used to produce the Talent Mapping E-module in increasing the Creativity of Elementary-aged Children. The Alessi and Trolip models also have shorter steps. In this study, researchers have developed an E-module, namely the talent mapping E-module for SD/MI-aged children. According to Lena et al. (2020) learning resources are all needed in learning which can be in the form of textbooks, print media, electronic media, and environmental media. The learning resources (E-module) are made in print and electronic form with ten aspects of assessment, namely cover (packaging), images, video, audio, animation, layout, talent theory, e-module text, materials, and talent mapping activity sheets.

This E-module was developed based on the observations of researchers, that in classroom learning the teacher does not know the talents of each child so the teacher when teaching treats all children equally. In this regard, Prastowo, (2012) suggests that teaching materials (E-modules) that are ready to use today are less contextual, less attractive, and may not be in accordance with the needs and characteristics of students. In this Talent Mapping E-module, there are three main activities carried out, namely; preliminary activities, content (mapping SD/MI student talents) and talent development activities. In Chapter I (introduction) an outline of what will be learned and the prerequisite knowledge that must be possessed before taking this E-module are introduced.

The introduction in this E-module is to discuss an overview of the E-module

which consists of the talent mapping E-module framework, the talent mapping E-module implementation process with a constructivism approach and the I-CARE model (Introduction, Connection, Application, Reflection and Extension). This model is used in this e-module to plan teaching such as teaching constructivism. This model consists of five phases, namely the orientation, the idea submission, the idea restructuring, the idea application and the review. In each of these phases, SD/MI students will be given activities that help them develop the talents of each child. Based on the theories, approaches, models and strategies used, it is hoped that the motivation, achievement and creativity of SD/MI students can be increased through the use of the SD/MI Student Talent Mapping E-module.

The Feasibility of Assessing the Talent Mapping E-module

After the E-module is finished, it is necessary to test the product quality to determine the quality of this E-module so that it can be declared feasible or not suitable to use. Product quality test is carried out using a validation test. The validation test is conducted by providing validation sheets to media experts, talent experts, and material experts. This E-module validation was conducted with the aim of obtaining a feasibility assessment, suggestions, and input from experts. This validation test uses an alpha test and a beta test on the E-module talent mapping prototype for elementary school-age children.

Figure 2 shows the mean for the assessment of experts and lecturers according to their respective fields of expertise, namely aspects of E-module knowledge, SD/MI education and talent development. Overall, the mean of expert assessment is at a high stage, which is more than 4.0.

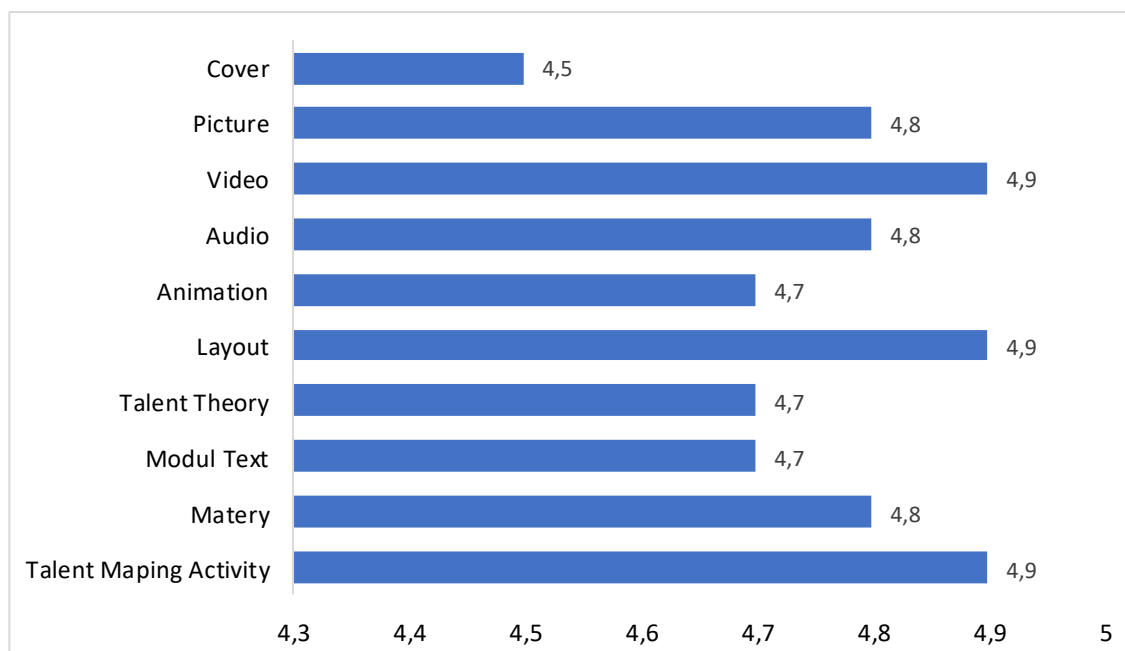


Figure 2. Mean of the Talent Mapping E-module by Experts and Lecturers

Alpha testing on the talent mapping E-module prototype contained ten assessment aspects, namely cover (packaging), images, video, audio, animation, layout, talent theory, e-module text, materials, and talent mapping activity sheets. From the ten aspects of the assessment, it was found that the expert and lecturer assessment of the talent mapping E-module was in the high category. Overall, all assessors agree and state that the talent mapping E-module is appropriate and can be used by SD/MI teachers and students. This E-module can help students improve their motivation, achievement, and creativity.

Expert assessors have provided several comments or suggestions to improve the talent mapping E-module. On the cover design of the E-module (cover) the assessor comments:

“The cover design that is made should show the contents of the E-module. Likewise, the title must be bigger and more proportional than the author's name. The cover color is also more contrasting so that the reader is interested.” (P1, P3)

“The first impression of seeing this E-module is that the title is very fascinating, but the cover is not communicative. In my opinion, the cover should

be made as attractive as possible with bright colors” (P2)

Based on input and suggestions from the three experts, the cover of the e-module has been revised. The previous dark blue color changed to orange. Likewise, with the font size, the title is made dominant and proportional compared to the author's name. Furthermore, the title color contrasts with the background color and doesn't use too many letter combinations. The sub-indicator for the cover design of the talent mapping E-module discusses illustrations of types of talent in terms of color and image. This illustration is chosen to better describe the contents of the talent material. The cover of this E-module illustrates the types of field talents that have to be developed in students. This is in accordance with the statement that the title and image on the cover of the E-module must match the contents of the E-module (Zakiyah, 2017). Thus, the title and illustration on the cover of the E-module must match the contents of the E-module.

Furthermore, in the video aspect, the expert suggested that the video be

added again, and appropriate images in the E-module to attract students' attention. Students for the SD/MI level will like seeing pictures in colorful E-modules.

"This E-module is already good. Teachers and students get something new. With this E-module, teachers can also develop the talents of their students. However, videos are added so that they can explain talent development properly." (P1, P3)

"The e-module is ok, but the pictures are made colorful so that children like reading and doing activities in this e-module" (P2)

In addition, one expert also commented on the size of the E-module.

"The size of the E-module is ISO compliant, so text and images can be read properly" (P2)

This talent mapping E-module uses A4 paper size with a size of 210 × 297 mm. The A4 size was chosen so that the text and images of teaching materials can be read properly and are following general use. In other words, the size of this talent mapping E-module is following ISO. This is following what was stated by Zakiyah, (2017) that the size of a good teaching material/e-module should be following ISO standards.

Apart from suggestions and comments on aspects assessed in the e-module as mentioned above, the three experts did not provide suggestions on other aspects. This shows that they agreed on the E-module prototype for other assessed aspects such as audio, animation, layout, talent theory, E-module text, materials, and talent mapping activity sheets.

Furthermore, the lecturer's assessment also did not provide negative comments on the E-module prototype that had been developed. The lecturer who assessed strongly agreed with this E-module. According to the assessor lecturer, this E-module is a new learning material to find out children's talents since SD/MI. Because talent is one of the

psychological elements that will greatly determine achievement in the future (educational success). Given the importance of developing the talents of SD/MI students, teachers need to develop students' talents through training, knowledge, experience, and encouragement to realize these talents. This is following what was stated by (Anwar et al., 2012; Isfiani et al., 2013; Jayantika et al., 2013; Sujarwo, 2010). that talent determines one's achievements and gifted people to achieve high achievements in the field someone engaged in. Achievements that are very prominent in one field reflect superior talent in that field. However, training, knowledge, experience, and encouragement are needed to realize this talent as well.

Therefore, the role of the teacher in developing students' talents is very important thing in the teaching and learning process (J. M. Hines et al., 1987). Students must be able to show their talents and interests. Teachers' understanding of students' talents needs to be realized to increase students' motivation, achievement, and creativity. This is in line with what Utomo et al., (2019) stated that teachers have to know their students. This introduction is not only their general nature and needs as a category, interests, and abilities as well as ways and styles of teaching but teachers must understand specifically the nature, talents/nature, interests, personal needs and aspirations of each student.

Furthermore, the assessor lecturer also stated that the content (material) section was very good because it was packaged in an interesting, creative, and innovative manner and was clarified with a video about talent mapping material.

"The material is very good because it is accompanied by a video that explains the material." (D1, D2, D5)

"The contents of this talent mapping e-module discuss good, interesting, innovative, and creative

illustrations and make it easier to understand the material.” (D3)

“The content as a whole is very clear and interesting, so this E-module can motivate students to be able to develop their talents.” (D4)

The statements above are following the statement of Prastowo, (2012) that the content of teaching materials (E-modules) that are innovative and creatively constructed can become teaching materials that are interesting and motivate students to learn enthusiastically. Through

such illustrations, it is easy to understand what will be discussed in this E-module.

For beta testing, an assessment by users (15 MI teachers) was carried out to improve and strengthen the E-module before being used by actual users in the elementary school (SD/MI). There are two main aspects assessed by the MI teachers. The first is assessment of talent mapping activity steps. The results of the assessment show that the three steps (think, make, and improve) of the talent mapping activity are at a high stage (overall mean exceeds 4.0).

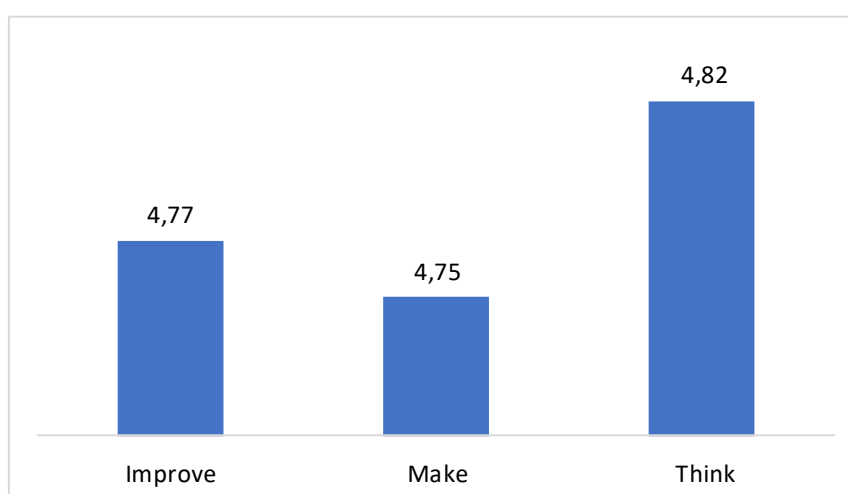


Figure 3. Mean Step Applying TMI (Think, Make and Improve) of the Talent Mapping E-module

Based on Figure 3, it shows that the talent mapping E-module can help SD/MI teachers in developing the talents of their students. Furthermore, the assessor teacher also states that the talent development activity section is a very good idea. Learners can find out their talents by following the steps of TMI (think, make, improve). This activity provides an opportunity for students to explore by following their respective talents.

“Talent development activities are quite interesting. Those provide opportunities for children to develop their talents.” (G1, G2, G5, G8, G11)

“The steps used in the E-module activity are great. The three steps (think, make, improve) are very suitable for talent development.” (G3, G10)

“Overall, the content of this E-module is very good and very clear, but in my opinion, there should be a lot more use of pictures in fairy tale books in every interesting activity.” (G9)

“The activities E-module is very good because children can develop their talents so that children can increase their creativity, motivation, and achievement.” (G13)

Furthermore, the second assessment comprises of ten aspects of the assessment, namely cover, images, video, audio, animation, layout, talent theory, E-module text, materials, and talent mapping activity sheets. The ten aspects of the assessment carried out by MI

teachers also show that the mean of expert assessment is at a high stage, which is more than 4.0 and suitable for use in

SD/MI as shown in the following Figure 4.

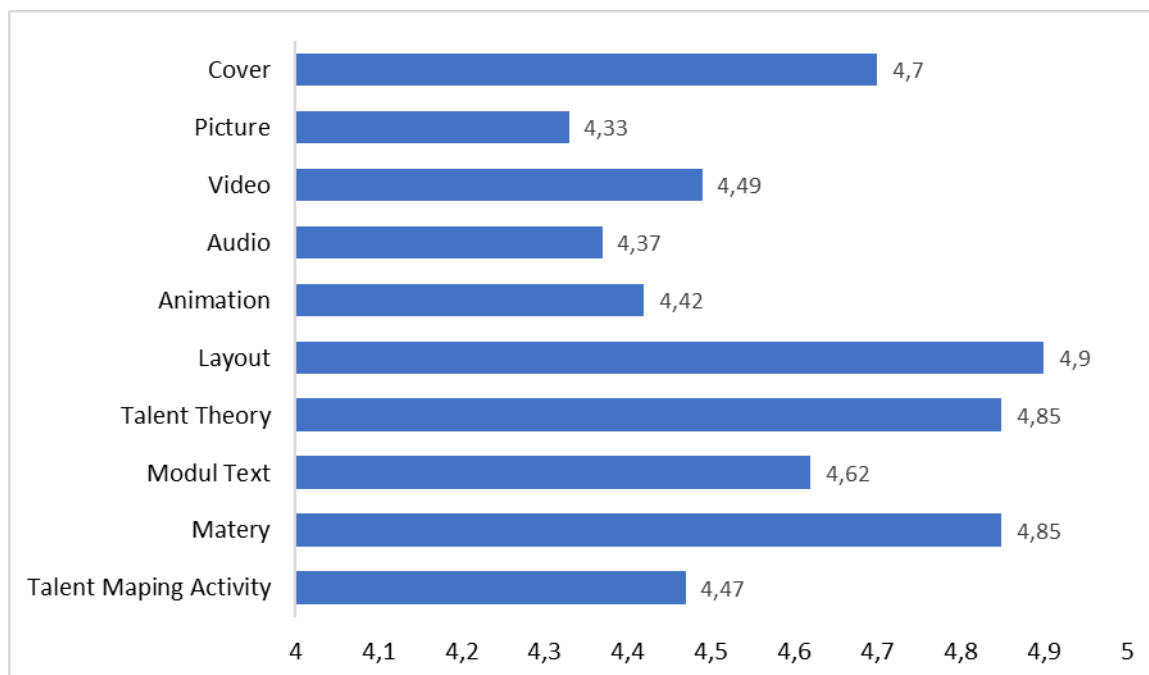


Figure 4. Mean Result of the Talent Mapping E-module

Talent development activities for elementary students are carried out through learning and supported by the extracurricular activities. It is intended so that the talent development process can run in line with the interests of each student both academically and non-academically. In the talent development process, the teacher has an important role to encourage each stage of talent development, and of course, it has to be facilitated by the school facilities and infrastructure. This is following what was stated by Atabik (2018); Isfiani et al., (2013); Kau (2017) that encouragement is a fertilizer that nourishes talent, and matures students in pursuing their talent and abilities. One of the impetus for talent development in schools is the existence of self-development activities.

CONCLUSION

Based on the results of the study, it can be concluded that the alpha and beta assessments indicate that the mean

assessment of MI experts, lecturers, and teachers is at a high stage (> 4.0). Thus, the talent mapping E-module is appropriate for teachers to use in developing children's talents. The suggestions for further research are: (1) further research should be able to create a Talent Mapping E-module for the high school level; (2) further research should be able to develop several other broader variables so that other skills can be developed to gain learning objectives; (3) further research should be developed using learning technology in the form of E-learning.

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