Exploring Practical Responses of M3LC for Learning Literacy

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Abstract. This study aims to explore the responses of participants toward Mathematics-Language Literacy Learning Courseware (M3LC) for learning literacy. There are five practical aspects concerned by involving 30 participants in the focus group discussion. In the beginning, participants were given some response sheet and introduced to M3LC by watching learning video of M3LC. At the end, they were asked to concern about response sheet and give comments related what they saw during the introduction session. The results show that the responses of users’ agree and strongly agree are still higher than those of users’ disagree or strongly disagree, with below 30% of responses are in the fair category. It means that the participants tend to give a positive opinion that M3LC is a useful courseware since it is qualified to satisfy 5 practical aspects, including knowledge use, knowledge construction, evaluation practice, social programming, and valuing to support literacy learning. In future, the implementation of using this courseware can be enhanced to further recognition of literacy level so that students can be well-prepared before starting learning activities in the classroom.

Keywords: Practical Response, M3LC, Learning Literacy

1. Introduction
Literacy skills are fundamental competencies for learners in the education system since it is needed to support the development of human resources. Students in the school need advanced levels of literacy to conduct their works, run their profession, act as excellence citizens, and perform their private lives [1]. In line with this opinion, providing a strong childhood literacy education in the early years leads to better results later [2]. OECD initiated Education at a Glance that led to the fulfillment of user needs, ranging from governments seeking to review academic and academic policies that require data for further analysis for the general public's will [3]. The implementation of Program for International Student Assessment (PISA) by OECD in Indonesia brings some useful information related to kinds of literacies, two of them such as mathematics and reading. At the same kind of assessment given to students in Indonesia, there is TIMSS that is assessing students' literacy in mathematics and science. According to international benchmark of TIMSS 2011, learning achievement of mathematics for Indonesian graders VIII that concern to measure content and cognitive dimension is in low level [4].

The main problems that students of Indonesia have been in terms of understanding of mathematical concepts, interpreting in the related concept, making a connection between mathematical concepts, and reading data [4]. The case like this is related with the explanation that behind of the construct of literacy there are emerging conceptual and procedural knowledge that support written language,
including mathematics writing and language of talk [5]. Next, this becomes compulsory for the educational institution to be considered how to deliver learning literacy for learners in the school, in particular mathematics and language literacy.

It is not easy to cultivate mathematical and language literacy because in learning it is full of challenges that are not only one, even complex due to the many factors involved. Early learners need to understand why people read, write, and work out the settlement of a problem in order to be motivated to excel in their own literacy development. Through active involvement in the literacy process, children learn how to use their knowledge and skills flexibly and in combination with the entire domain of development [6].

Now, there are many sophisticated interactive types of equipment that are useful for supporting learning activities. Harnessing the existence of technology and its development give a positive contribution to method or approach of learning that can be applied to learners. Nugroho stated that the use of game sequences and geometry series in the classroom can increase students' interest in mathematics by 20.57% and improve mathematics learning achievement of 10.86%[7]. Similarly, Al-astal & Zaydah have been developing e-books in order to support mathematical thinking skills and the acquisition of mathematical concepts for graders 5th in Gaza [8] and also Ahmar & Rahman have been developing teaching material using Android [9] and they study how to improve the learning process with cognitive style [10], learning style [11], and problem solving [12].

One of beneficial and powerful technology using computer and internet is eXe-learning. It is an interactive application that teachers can be engaged to create innovative learning programs. This program is connected in a comprehensive manner such as hyperlink setting. The display can be shown on the page can be in the form of HTML, so the form is web-based on the user's computer. The variety of features contained in the eXe-learning program so that the combination of theory, images, video, and games is possible to be presented. Similarly, for interactive or non-interactive activities can be constructed so as to form an environment that supposes students to learn. Moreover, the literature to be developed directed can trigger students' knowledge, especially for math and language subjects.

Based on eXe-Learning system, Mathematics-Language Literacy Learning Courseware (M3LC) is constructed as an interactive learning equipment that is provided for students who want to enhance their literacy skills, in particular mathematics and language literacy. To what extent this product can address the main purpose of construction the courseware. By developing the annotations Shadish Cook and Leviton (in [13]), this article would like to identify practical response in terms of knowledge use, social programming, knowledge construction, valuing, and practical evaluation.

2. Methods
The aim of this study was to explore the responses of participants toward Mathematics-Language Literacy Learning Courseware (M3LC) in the learning literacy. In order to obtain data of practical response, there were 30 participants getting involved in the focus group discussion activities. The participants who were getting engaged in the discussion are student-teachers, teachers, and instructors of mathematics in high school. They are considered to have expertise in the field of mathematics and education. In the beginning, participants were given some response sheets and introduced to M3LC. During the introduction of the courseware, learning video with the application of M3LC was played in front of participants. At the end, they were asked to concern about response sheet and gave comments related what they saw during the introduction session.

At least 5 meetings of FGD were conducted to discuss practical of M3LC. These meetings were organized into five topics discussion. We started the meetings based on the topics as follows social programming, the use of knowledge, benefits, knowledge construction, and practical evaluation. Then, their responses were collected using Response Sheet (RS). For details, this RS contained the indicators of each topic. See the table below.
Table 1. Five Topics Used to Evaluate M3LC Based on the Response of Participants

| Aspects of Response | Indicators |
|---------------------|------------|
| Social Programming (SP) | Direct the user to understand the learning topic well |
|                      | Friendly use as a learning medium |
|                      | Support learning activities "anywhere" |
|                      | Support learning activities "anytime" |
|                      | Support electronic-based learning activities |
|                      | Support as a learning tool |
|                      | Support as an interactive learning tool |
| Knowledge Use (KU)   | Direct the use of learners' knowledge |
|                      | Help in improving the understanding of learning materials |
|                      | Organize tasks systematically |
|                      | Record the assignment given by the teacher |
|                      | Bridge the continuity of learning activities from each meeting |
|                      | Bring beneficial learning activities |
|                      | Trigger students to complete their assigned tasks |
|                      | Lead learners to build knowledge in completing tasks given |
| Valuing (V)          | Promote learners' self-confidence in building knowledge through the tasks assigned |
|                      | Facilitate learners to learn individually |
|                      | Support to assess learners' performance in learning activities |
|                      | Support the transparency of student performance appraisal in learning activities |
|                      | Support learners identifying potential environments |
|                      | Build an academic atmosphere in learning activities |
|                      | Address the ability to interpret the problems given to learners |
| Knowledge Construction (KC) | Support the communication system in the learning activities |
|                          | Direct the establishment of a fellow networking system of learners |
|                          | Generate a network system between learners and educators |
|                          | Trigger learners to think logically |
| Evaluation Practice (EV) | Facilitate learners to think comprehensively |
|                           | Guide learners to think critically |
|                           | Teach learners to think about what is done |
The response data obtained from the participants was quantitative data. In the response sheet, the display of indicators was written by providing five choices. They were strongly agree (score 5), agree (score 4), fair (score 3), disagree (score 2), and strongly disagree (score 1). The graphical form was selected to present the responses data [14] and percentage (%) to describe the tendency of responses which are divided into five groups of responses. These groups of responses based on the topics of discussion comprise Knowledge Use (KU), Social Programming (SP), Knowledge Construction (KC), Valuing (V), and Practical Evaluation (PE).

3. Results and Discussion

The preview of M3LC designed in this study is shown in picture below.

![Display of The M3LC](image)

M3LC is the product eXe-Learning based courseware constructed as an interactive learning equipment that is provided for students who want to enhance their literacy skills, in particular, mathematics and language literacy. Focus Group Discussion was conducted to explore the tendency of participants’ responses toward the courseware in terms of knowledge use (KU), knowledge construction (KC), evaluation practice (EP), social programming (SP), and valuing (V). The results of data analysis of users’ responses in regard to the advantages of the M3LC are summarized in figure 2.
Figure 2 shows the representation of the participants’ responses related to the practical evaluation of M3LC. The responses of FGD’s participants in category disagree or strongly disagree are not more than 10.40%. It brings the information that more than 50% of their responses support the practical aspects of M3LC to be applied in the learning activities, although below 30% of responses are in fair category.

Based on this statistical information, it shows that M3LC brings standard of valuable courseware in that students can take some advantages related to learning literacy as the main purpose it was constructed. It is in line with the statement that internet based programs and community networking proficiencies have augmented in acceptance, enlightening their potential [15]. Then, the use of WeChat address to promise pedagogical prospective for helping language learning in various ways, in particular, in assisting semi-synchronous collaboration through media-based rich environment [16].

4. Conclusions

The potential of Mathematics-Language Literacy Learning Module (M3LC) can be explained in 5 practical aspects, including knowledge use, knowledge construction, evaluation practice, social programming, and valuing. These advantages value of M3LC is supported by responses from the practitioners in the classroom. Their responses show that the tendency of agree and strongly agree arguments are still higher than those of arguments in disagree or strongly disagree category, with below 30% of responses are in fair category. In the other words, the respondents tend to give positive opinion that this courseware is helpful and useful to support literacy learning. In future, the implementation of using this courseware can be enhanced to further recognition of literacy level so that students can be well-prepared before starting learning activities in the classroom.

Acknowledgement

The author expresses his gratitude to Kemenristekdikti for research grant of Dosen Pemula Which supports the implementation of this research. We also thank teachers and students in the Senior High
School in Makassar who have been getting involved in all of the research activities until the last of meeting.

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