

Developing Coloring Books to Enhance Reading Comprehension Competence and Creativity

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Abstract— Developing a reading learning media can be an effort to increase students' reading comprehension, but there are many teachers who do not put much attention into it. This research aimed at developing a parenting colouring book as a learning media to enhance elementary students' reading comprehension ability and creativity. The method employed was research and development as modelled by Akker. The method consists of three stages, namely analysis, design, evaluation, and revision. The parenting colouring book was firstly validated by experts on the product, which was tested in one-to-one, small groups, and field trial with third graders in one of the elementary schools in Palembang participated in this study. Data collection techniques employed were interviews, questionnaires, and tests. Finally, the study results demonstrate that the parenting-themed coloring book media are categorized as valid, practical, and having potential effects.

Keywords—*research and development; coloring book; parenting; reading comprehension.*

I. INTRODUCTION

The Indonesian Ministry of Education and Culture's Regulation No. 65 of 2013 regarding elementary and secondary education process standards defines that the learning process in educational institutions should be carried out in an interactive, inspiring, and enjoyable atmosphere. It should also provide a space that motivates the students to take an active part in the lessons, while facilitating a room for initiatives, creativity, and independence, related to the students' respective talents, interests, and physical and psychological development [1]. One of the efforts that can be implemented to achieve this process and deal with some problems in learning is through the use of learning media. Learning media is an instrument used to facilitate the understanding of a concept to be achieved in learning [2]. Learning media can be used as an alternative because they emphasize on innovation.

This study was concerned in conducting a research and developing a learning media to enhance students' reading comprehension. The learning media that composed was a parenting-themed coloring book. This media had been familiar to teachers and students [3]. The coloring book intended to assist third-grade elementary students to enhance reading comprehension ability and creativity. The coloring book composed with the concept that children may

learn English while playing during the process, thus it might encourage students' motivation and creativity. This implied that learning which emphasizes on students' activity may enhance learning motivation, thinking abilities, creativity, and learning independence.

The coloring book, which was developed by using the concepts of stories and pictures with parenting themes, aimed at making the students to be more independent as well as to enhance their learning motivation and creativity. The development of students' creativity will be realized when students color the pictures provided in the coloring book. Meanwhile, the students' independence will be realized when the students spend some time to read the stories in the coloring book.

Consequently, the research questions are: Is the parenting-themed coloring book for the third graders of elementary school valid, practical, and having a potential effect? Following the research problems, the objectives of the study are to investigate whether the parenting-themed coloring book for the third graders of elementary school is valid, practical, and provide potential for affecting the students' creativity and competence in reading comprehension. This study is expected to contribute positively for students (i.e. to assist learning parenting-themed material), for teachers (i.e. the use of this learning media may add more learning instrument in teaching parenting-themed material), and for other researchers (i.e. the research may be used as a reference to study deeper about learning media).

The function of learning media for students are to increase motivation, provide and enhance learning variations, provide the structure of subject's materials, provide ease for the students in learning, provide the main ideas and the important points systematically to facilitate students to learn, stimulate learners to focus and analyze, and create conditions and situations of learning without pressure [4].

Reference [5] states that learning media are all things that can be used to deliver messages from the sender to the recipient in the form of physical devices or objects, which make communication and the interaction effect between the teachers and the students during the learning process in the classroom. Learning media is one component of learning. As stated by [6] that, "concepts that are abstract and difficult

to explain directly to the students can be made concrete or simplified through learning media.”

Furthermore, reference [7] underlines that educational media or learning media grow and develop in line with the development of learning technology. The substance of the learning media are: 1) the form of the channel used to deliver the message, information or lesson material to the recipients of the message or learners; 2) various types of components in the learning environment which can stimulate learners to learn; 3) the forms of physical devices that can present messages and stimulate students to learn; 4) the forms of communication that can stimulate learners to learn, both printed or audio, visual and audiovisual.

Next, reference [8] claims “A good reader is an accurate and fast reader”. Some characteristics and requirements to be good readers are necessary as a foundation of reading comprehension [9]. In the reading comprehension test, students have to finish the test in a limited time. To acquire the information from what students read, they must be able to read accurately and quickly. To do this, slow students should improve their reading skills and reading habit. If not, it will be hard for them to finish the test on time. It is stated, “Reading comprehension means extracting the required information from the material as efficiently as possible” [8].

Reading comprehension deals with the level of understanding toward written text [10], producing meanings from the interaction between information, knowledge, emotion, experience, and culture of the readers with the printed words. Without comprehension, the act of reading is empty [11]. Reading comprehension is not limited to the response of the readers toward the text, but it covers a more complicated process that involves the negotiation between the readers’ prior knowledge, their experience in reading, their mastery of various reading strategies along with aspects from the texts such as the text’s genres, types, and topics.

According to [12], some fundamental components of reading comprehension include word recognition, working memory, word knowledge, prior knowledge, inference assumptions or hypotheses, and comprehension monitoring. In a broad definition, reading is the complex communicative behavior of deriving meaning from the presented text [13]. Reference [14] defines reading as an active, intentional and creative mental process in which the reader is involved in an instruction with the text to the construct meaning from the text, by partly using new information presented in the text and partly using any relevant world knowledge, emotions, and opinions for the sake of making sense of the texts presented on the page.

Comprehension can be defined as “an active process that requires an intentional and thoughtful interaction between the reader and the text” [15]. Reference [16] argues that comprehension is a process where readers construct meaning through interaction with text with the integration of background knowledge and prior experience, the information presented in the text, and the view point the reader holds in connection to the text. Besides, reading comprehension is defined “as the process of simultaneously

extracting and constructing meaning through interaction and involvement with written language” [17]. In other words, reading comprehension is an active and intentional interaction and engagement between the reader and text to extract and construct meaning. Reading is much more than getting information from the text through decoding what is written in the text. Reading is the formation of meaning where the readers bring in their past experience and prior into the process.

The processes of reading which are widely agreed by experts are a bottom-up model (from text to brain) and the top-down model (from the brain to text). Reference [14] describes the two processes. First, in the bottom-up model, the readers decode the text (English text) from left to right, from letters into words, and from words into sentences in deriving the writer’s message which the readers continue from this reading process to the top-down model. Secondly, in the top-down model, the readers decode the text exactly or sequentially. In this case, readers will negotiate between the expected meaning that they assume prior to the reading process with the meaning formed during the reading process. In this case, the reading process makes use of all the available visual information on the text to confirm or to negate their expectation. In short, reading is a process of predicting a meaning, getting samples to verify the meanings, and confirming the predicted meaning. It is a process where the readers are engaged with a text in the process of integrating the information presented in the text with their prior knowledge to construct a meaning for the text.

So, reading needs comprehension. Comprehension is the main purpose of reading. Comprehending the text is an active interactive process between the readers’ prior knowledge of the text. Reading depends on the quality of the readers’ comprehension. In other words, being a good reader necessitates good comprehension. Comprehension is an active, thinking process. It requires effort on the part of readers. Readers need to assess their prior knowledge, while measuring their vocabulary, relating concepts, making inferences, and linking key ideas.

Reference [11] argues that there are five basic comprehension processes that simultaneously work, namely micro-processes, integrative processes, micro-processes, elaborative processes, and metacognition processes. It is further stated that reading comprehension can be categorized into some levels. People who master reading comprehension skills can be considered in a certain level based on their achievement. Referring to [18], there are four reading comprehension levels (i.e. literal, inferential, evaluation, and appreciation). In particular, this study is assumed to focus on the first level of reading comprehension. Elementary school students are expected to master their literal levels, such as perceiving the main idea explicitly stated in a written text, identifying general information from a written text, identifying general sequence information from a written text, identifying general cause and effect explicitly in a written text, and explaining the meaning of word, phrase, and sentence based on the text.

Creativity is the result of creative thinking because creative thinking is the process when one creates new ideas. According to [19], creativity is the ability to produce or create something new; creativity is the ability to make new combinations that have social significance. Creativity involves characteristics related to the ability to discover or do something new. Furthermore, reference [20] adds that creativity also involves the ability to find new alternative solutions different from the existing ones, both through original ideas or through original combinations of the existing ideas.

Several studies have been carried out on the related topic. For instance, references [21] that suggested the *Pencak Silat* (or martial arts) puzzle and coloring book media were appropriate to be used to introduce the basics of *Pencak Silat* for young learners. Next, reference [22] investigated the development of a reading comprehension test. These studies have several differences in the current study. The current researchers utilize parenting-themed coloring books to increase students' reading comprehension ability and creativity.

II. METHODOLOGY

A. Research Method

To develop a parenting-themed coloring book for the third graders, the development research method was used. Reference [23] states that, development research aims at designing a product for certain purposes through certain procedures (i.e. analysis, design, evaluation, and revision). Besides, the formative evaluation model proposed by [24] was employed in the evaluation to the intervention. As described by [23], the intervention can be categorized into three main criteria of quality of intervention (i.e. validity, practicality, and effectiveness).

B. Research Participants

The developed parenting-themed coloring book for the third graders were evaluated by the students of one of the private elementary schools in Palembang particularly those who were in the first semester, and the academic year of 2019/2020. The research subjects are described in Table 1.

TABLE 1. STAGE OF FORMATIVE EVALUATION

No	Staged by Formative Evaluation	Description of the Students
1	One-to-one evaluation	1 student for each category, i.e: low, medium, and high proficiency
2	Small group evaluation	3 students for each category, i.e: low, medium, and high proficiency
3	Field test	All the students in a real class

C. Research Procedures

The procedures of the study based on the aforementioned suggestions [23], which comprise the phases, i.e.; analysis, design, evaluation, and revision, as follows:

1) Analysis

This phase includes instructional analysis, environmental analysis, students' need analysis, and students' reading level analysis. Concerning reading level analysis, reference [25], an informal reading inventory (IRI) was utilized. Each text consists of three reading stages which are frustration, instructional, and independent.

2) Design

Here, the product prototype is designed consisting of the paper-based design of the coloring book. In paper-based design, the activities were the content of the coloring book and a parenting-themed reading comprehension text. For readability, the reading texts were calculated automatically by using an online tool named Flesch Kincaid (i.e.: <https://readability-score.com/>). Next, the reading comprehension test is in the form of multiple-choice questions, conveying some aspects such as the main idea, influence, cause-effect, detail, vocabulary in context, etc.

3) Evaluation and Revision

In this phase, the formative evaluation by [24] was used. There are five steps in this evaluation, namely, self-evaluation, expert review, one-to-one evaluation, small group evaluation, and field test. The procedure of the study is concisely presented in Fig. 1.

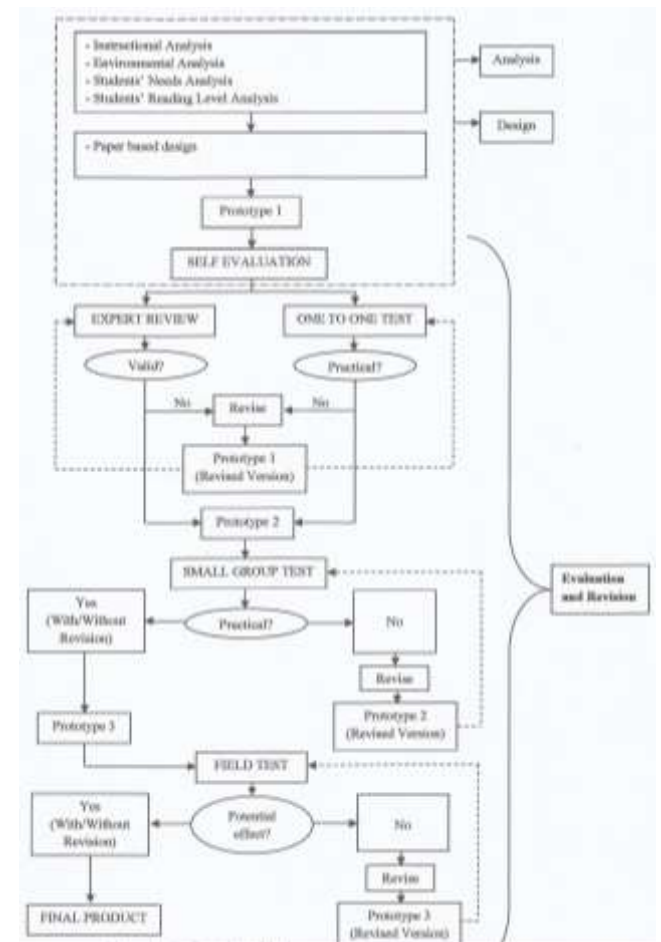


Fig. 1. Procedure of study

D. Data Collection Techniques and Analysis

Since the research aim is to develop a parenting-themed coloring book that is valid, practical and has potential effect; consequently, to determine its validity, practicality, and potential effect, instruments that used were questionnaires (Likert-scale, closed-ended questions), structured interview, and reading comprehension test.

The validity of the product was determined in the expert review. They provided the judgment via questionnaires. To determine the product's validity level, the scores were calculated and interpreted. Next, to analyze its practicality, questionnaires were administered to students in one-to-one and small group evaluations. The validity and practicality categorizations were modified from [26]. The scores obtained were then calculated and interpreted. Finally, to investigate the potential effect of the developed product, the reading comprehension test was used. The data were analyzed by using percentages, based on the minimum criteria (or KKM) which were 70.

III. RESULTS AND DISCUSSION

A. Analysis

The parenting-themed coloring book developed by the researchers is a type of development research. After the story in this coloring book was completed, the researchers analyzed the students' reading levels by using the *Flesch-Kincaid Grade Level*. The results demonstrate the reading level of Siblings is 4 or it is easy to read. It means the story is suitable for third and fourth graders.

In the analysis phase, it began with the analysis of the material at the elementary level. The material analyzed was the materials for third graders. Furthermore, the researchers analyzed the environment around pupils related to how students' introduction to their families. The researchers then analyzed student needs using a questionnaire.

There were 30 questions included in the questionnaire and there were 25 students acted as respondents. The responds to the questionnaire's questions revealed that (1) although the students' reading skill was low, they perceived having capability in reading English texts was very important; (2) the students had low interest in reading, as reflected in the scarcity of the reading frequency; (3) English teacher still employed teacher-centred method and rarely used innovative methods (4) students showed high eagerness in reading; (5) students had very high opinion in essay questions; (6) students perceived reading with media technology as more interesting than the conventional reading; (7) students had never used e-learning based on thoe local folklores; (8) students perceived online reading materials were difficult to comprehend and were not reasonable to students' reading level.

B. Design

In the design phase, there was a story developed as reading materials in a set of parenting-themed coloring

book as shown in Fig. 2 and 3. These figures suggest the parenting-themed coloring book has a moral message.



Fig. 2. Example of the coloring book

Siblings	
<p>Mia and Ani are two sisters. They are siblings. Mia, the older sister, is now in the third grade of elementary school while Ani, the youngest, is only 3 years old. Mia was busy doing homework, tasks from school, in the family room. The teacher of craft in school asked students to make gift decorations using ribbons.</p>	
<p>That afternoon Mia was still busy cutting and sticking ribbons. Ani was interested in his sister's activities. She tried to come closer and started tugging at the decorative ribbon. At that time, Mother was reading while sitting on the sofa, near the children. Mother occasionally watched the siblings who were busy working and playing..... etc...etc.</p>	

Fig. 3. Extract of the story in the coloring book

C. Evaluation and Revision

1). Expert Validation

Experts validation was conducted by seeking opinions from related experts concerning this product's content, instructional design, and product design. In the following table, the suggestions from the expert judges are summarized.

No	Expert Review Judgment	Suggestions
1	Product Design	Various picture can be employed to enrich the book
2	Instructional Design	It would be better that the book is equipped with choices to employ scientific approach so teacher can have reference about how to use the book using scientific approach.
3	Content	Good.

2). Level of Validation

The average score of each validity was used to determine the content validity, construct validity and product validity. The average score of the content validity of the parenting-themed coloring book was 3.86, which can be considered as very high. The score of the construct validity was 3.67, which can be categorized as very high. The score for the product validity was 3.50, which was very high. Thus, the overall validity was 3.67, which was very

high. Thus, the parenting-themed coloring book can be categorized as valid with a very high level of validity.

3). *One-to-One Evaluation*

The one-to-one evaluation was held in the early weeks of the first semester of the academic year 2019/2020 at one of the primary schools in Palembang. Two 80-minute meetings were allocated for the one-to-one evaluation. The one-to-one evaluation was conducted with three students. The average score acquired was 3.40, which can be categorized as very high practical level. Tus, the parenting-themed coloring book can be categorized as very highly practical.

4). *Small-Group Evaluation*

The small group evaluation was held in the second month of the semester of the academic year 2019/2020 at one of the primary schools in Palembang. Two 80-minute meetings were allocated for small group evaluation. Three students were involved in the small group evaluation. The average score of practicality acquired was 3.58, which can be categorized as very high. It could be concluded that the parenting-themed coloring book has a very high practical level.

5). *Evaluation/Field Trial*

The field trial in this study was conducted in the third month of the first semester of the academic year 2019/2020. In the field trial, 26 students were involed. During the reading comprehension test, the parenting-themed coloring book was proven effective. The test revealed that 19 out of 26 students (76.93%) achieved the minimum mastery criterion 75. The result of the field trial could be seen in the following figure.

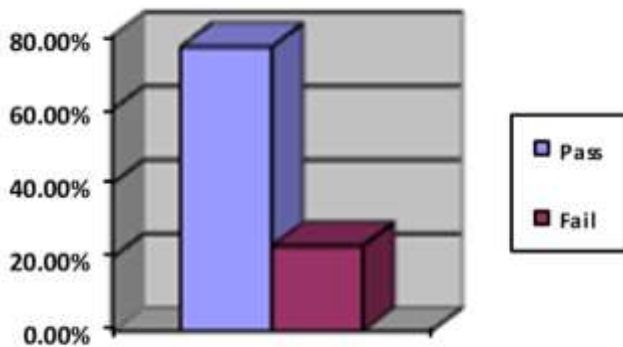


Fig. 4. *Test result*

IV. CONCLUSION

The parenting-themed coloring book is valid, practical, and has a potential effect. The use of the parenting-themed coloring book is most likely to enhance reading comprehension ability and creativity. It would be fruitful to pursue further research about developing coloring books in varied themes to improve other English skills.

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