

## The Development of Crocheting Teaching Material for Student with Hearing Impairment in SMALB

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**Abstract:** The goal of this research is to produce the crocheting teaching material that fit the characteristics and needs of students with hearing impairment. This research used Borg & Gall (1983) development research design. The result of material expert validation data analysis shows that mean value 71%, 94% of learning expert, 93% of media expert, and 100% of linguist. The result of performance test analysis on three students with hearing impairment shows effectiveness value 64.96. Based on expert validation data and students performance test result analysis, it can be concluded that teaching material is valid and effective to be used as reference in crocheting learning activities.

**Keywords:** teaching material, crocheting, student with hearing impairment

The Regulation of National Education Minister Number 22 Year 2006 stated that the academic content of subjects for SMALB A, B, D, E experienced modifications and adjustments from regular high school. The contents of academic field turned into 40%-50% and vocational field contents turned into 60%-50%. Then, Kementrian Pendidikan dan Kebudayaan (2015) mentioned that the vocational skills exist in SMALB are culinary, fashion, cosmetic, IT, automotive, and handicraft. The scopes of skill learning material are different based on the disability.

One SMALB that follows The Regulation of National Education Minister Number 22 Year 2006 is SMALB Kemala Bhayangkari Trenggalek. Skill learning held in SMALB Kemala Bhayangkari Trenggalek are fashion and handicraft for students with hearing impairment. The handicraft skill learning is focused on crocheting of tissue place.

The learning of crocheting in SMALB Kemala Bhayangkari Trenggalek class X is accompanied by a classroom teacher. The classroom teacher is the only learning resources because there is no crocheting teaching material fits the characteristics and necessities of students with hearing impairment. Widodo & Jasmadi (2008) stated that teacher is a facilitator for student and not the only learning resources. Teacher as a facilitator should be able to motivate and cultivate students to learn, so they could actively build their own knowledge and interest.

Widodo & Jasmadi (2008) mentioned that teaching material has to fit the students' characteristics and necessities. But, the teaching material used in SMALB Kemala Bhayangkari does not fit the characteristics of

students with hearing impairment. The used teaching material does not contain concrete illustrations so that the material is difficult to be understood. The words used in the teaching material do not suitable for students. There are many words in English that actually can be replaced with Bahasa Indonesia (such as purse that can be replace with *dompot*, eye catching that can be replaced with *menarik*, note that can be replaced with *catatan*, and so on). Besides that, the used teaching material does not contain the crocheting competencies that must be mastered by the students.

Widodo & Jasmadi (2008) stated that teaching material must contain learning materials in detail so the learning purposes can be achieved, while the crocheting materials in the used teaching material is very general. The used teaching material does not contain neither basic crocheting steps' illustration nor the crocheting variation steps' illustration. The patterns presented in the used teaching material are not whole and the rest are described. Those descriptions are very abstract and difficult to be understood by students with hearing impairment. Widodo & Jasmadi (2008) added that evaluation is a feedback and a tool to measure the students' achievement level.

While the exercises and evaluations contained in the used teaching material is very lack.

Somantri (2005) stated that hearing impairment is a state of hearing loss that makes someone not be able to capture the various stimulations primarily through his or her sense of hearing.

The loss of hearing makes students with hearing impairment need an adjustment in the learning activity including the adjustment of learning resources in the

form of teaching materials. According to Brinkley (2011), Westwood (2003), and Pangestuti (2014) statement, can be concluded the things that must be considered in arranging the teaching materials for students with hearing impairment are: 1) providing a clear illustration, it is better to avoid useless illustrations even if they are good in appearance. Too many illustrations that are not related to the material will make the child's attention split on unnecessary things; 2) giving an emphasis to important words; 3) avoid giving instructions, directions, or commands in one sentence using conjunction "and"; 4) use easy-to-read writing arrangements and layouts; 5) using active sentences and avoiding the usage of passive sentences; 6) simplifying the language used in teaching material; 7) presenting an explanation in points rather than in paragraph form.

The incompatibility of teaching materials makes the crochet learning activities in school less developed. Students become passive because the learning activities are centered on the teacher as the only learning resource for students. In addition, students' insight into crocheting material becomes very limited. During the learning activities students only make a tissue place, so that, the students can only crochet three kinds of basic stitches to make a tissue place, such as: chain stitch, single stitch, and double stitch. Beside these three stitches, students are still unfamiliar with other basic stitches as well as other basic stitches variations. Therefore, the arranging of crocheting teaching material that fits the characteristics of students with hearing impairment is needed.

The purpose of this research and development is to produce crocheting teaching material that fits the characteristics and needs of students with hearing impairment class X in SMALB Kemala Bhayangkari Trenggalek

## METHOD

The research and development method in this research refers to Borg & Gall (1987) research and development method which is adjusted to the needs of research. The development steps by Borg & Gall (1987) are: (1) research and information collecting, (2) planning, (3) develop preliminary form of product, (4) preliminary field testing, (5) main product revision, (6) main field testing, (7) operational product revision, (8) operational field testing, (9) final product revision, (10) dissemination and implementation.

In detail, the research and development of crocheting teaching materials for students with hearing impairment go through several stages as follows. *The first* was researching and data collection. At this stage, the researcher analyzed the needs of teaching materials

and did a small-scale research. *The second* was planning. At this stage the researcher identified the skill curriculum, prepared the RPP or lesson plan, developed an assessment instruments based on learning objectives in the form of exercise and evaluation questions, and formulated the components of teaching materials. *The third* was developing the initial product. *The fourth* was expert validation containing material expert validation, learning expert validation, media expert validation, and linguist validation. *The fifth* was the initial product revision. *The sixth* was field trial. *Seventh* was final product revision.

The data collection method done in this research was need analysis of teaching material with observation and interview, questionnaire filling, and product trial. The qualitative data were obtained from observations and interviews and advices from experts. Thw quantitative data were obtained from the questionnaires and product trials in the form of a percentage of prevalence and teaching materials.

The data collection instruments used in this research were observation sheet and interview, questionnaire, and student performance sheet.

The data analysis in this research was qualitative data analyzed of observation and interview result, qualitative data analyzed of experts' advices, quantitative data analyzed of expert validation, and quantitative data analyzed of student test. The qualitative data of observations and interviews result were briefly described. Qualitative data of expert's suggestions and advices were described specifically in terms of the teaching material improvement aspects. Quantitative data analysis of expert validation used was the validity formula of teaching materials from Akbar (2015).

Furthermore, the results of expert validation analysis were matched with the validity criteria of Akbar (2015). The students' pretest and post test scores were analyzed using the formula from Akbar (2015). The effectiveness of teaching materials was analyzed using ordinal t-test from Supardi (2013).

## FINDINGS AND DISCUSSION

### Findings

The result of material expert validation data analysis showed that the average validity score of 71%. The scores refer to valid criteria with small revisions. The material expert suggested adding the sequence number to the illustration of how to make a chain stitch and single stitch. Before the revision, the illustrations were only given a description of "step 1, step 2, etc." while after revision, the illustrations were accompanied by a serial number according to the steps of making a

chain stitch and a single stitch.

The result of learning expert validation data analysis showed that the average validity score of 94%. The scores refer to very valid criteria. The learning expert suggested that: 1) adding dots after question on evaluation question; 2) adding answer choice about evaluation page 30 number 3; 3) adding the instruction before the picture on the evaluation page 4 number 1; 4) replacing the evaluation of page 20 number 4 because it is less suitable for multiple choice questions; 5) replace the instruction "jawablah dengan singkat".

The exposure to the revision of instructional materials are: 1) before the revision, the evaluation question was not equipped with the dots at the end of the question, whereas after the revision, the evaluation question is equipped with dots; 2) before the revision, there were only six choices on the evaluation question page 30 number 3, while after revision, the choices is added one; 3) before the revision, the question on the page 4 number 1 only contained the question about the tool name in the picture, whereas after the revision, the question is completed with a command to pay attention to the picture first; 4) before the revision, the question of multiple choice number 4 page 20 was more appropriate for the essay, whereas after revision, the question is replaced by the question of the symbol name in the picture; 5) before the revision, the command on the question was "jawablah dengan singkat" while after the revision, the command is changed to "jawablah pertanyaan dengan benar".

The result of media expert validation data analysis showed the average validity score of 93%. The scores refer to very valid criteria. Media expert suggests that the front cover illustrations not only feature finished crochet product, but also crocheting tools and materials. Before the revision, the illustration of the cover material was a picture of a crochet wallet, whereas after the revision, the illustration of the teaching material was a picture of a knit bag, yarn, and crochet hook.

The result of linguist expert data analysis showed the average validity score of 100%. The scores refer to very valid criteria. The linguist suggested that: 1) separating the preface and gratitude into two different pages; 2) adding a glossary in the teaching materials. The exposure to the revision of instructional materials are: 1) before revision, the introduction and thank you were on page ii, while after revision, the introduction is on page ii and gratitude is on page iii; 2) before revision, there was no glossary on the teaching materials, while after revision there is a glossary on the teaching materials.

The results of students pretest and post test scores analysis showed that the value of  $t = 64.96$ . While theoretical  $t$  for the trust level of 95% and the df of 2 of one tail test is 2,920. Teaching materials can be

stated effective if  $t$  arithmetic  $\geq$  of  $t$  table. In addition to quantitative data obtained qualitative data based on observations of researcher. The parts of the teaching materials that need to be improved are the writing of "karakteristik" and "modifikasi" as well as the addition of illustrations on the chapter of wearable crochet. The revision of teaching materials are: 1) before revision, there were "karakteristik" and "modifikasi" in the material exposure, while after revision, the word is changed to "ciri" and "merubah"; 2) before the revision, the material exposure in the sub-chapter crocheting by the pattern and designing the design of wearable objects only contained the points without illustration, whereas after revision, the exposure of the material is equipped with illustrations.

## Discussion

The results of research and development conducted by researcher is a crocheting teaching material for students with hearing impairment of class X in SMALB Kemala Bhayangkari Trenggalek. Based on the data analysis of experts' validation and student testing, it is known that the teaching material is valid and effective to be used. But the teaching materials still have some weaknesses. This teaching material contains limited material in accordance with Competency Standards and Basic Competencies in SMALB Kemala Bhayangkari Trenggalek. In addition, the teaching material is developed in the form of print. The instructions delivery in the teaching materials of how to crochet only through two-dimensional pictures so the delivery of the material more leverage when accompanied by teacher direct demonstration. Therefore, the usage of teaching materials still requires the assistance of classroom teachers so the students can ask the teacher when they find any difficulties.

The developed crocheting teaching material not only has some weaknesses but also has several advantages compared to general teaching materials. The teaching material is developed according to the characteristics of students with hearing impairment and Competency Standards and Basic Competencies in the school. Purnomo (2011) conveyed that the accuracy of teaching materials prepared by teachers will help the students 'reasoning process to understand basic concepts, to develop students' understanding, to motivate students to develop their thinking, and to develop thinking creativity. Teaching materials that fit the students' characteristics ease students in learning so the students' learning outcomes can improve. This is consistent with the Mufidah (2016) that there are differences in student learning outcome that using developed teaching materials and students using general teaching materials. Student learning outcome using developed teaching materials is higher than student

learning outcome using general teaching materials.

Moreover, the developed teaching materials are attractively designed. Shinta (2014) reveals that attractively designed teaching materials add the students' motivation in learning. The developed teaching material is designed with bright colors. In addition, the design on the cover contains picture of crochet bag, crochet hook, and crochet yarns that represent the entire content of teaching materials.

The developed teaching material contains materials, crocheting instructions, exercise questions, evaluation questions, supplementary information, summaries, crochet patterns, and glossaries. Kristian (2016) concluded that complete and continuous teaching materials can be a solution in learning activities. The materials in the developed teaching material are described in simple language and equipped with an example in the form of pictures. How to crochet basic stitch and basic stitch variations are presented step by step with concrete illustrations. Widodo & Jasmadi (2008) stated that the making of teaching materials should aim to clarify and facilitate the presentation so the presentation not to be very verbal. In addition, there are exercise questions and evaluations at the end of the chapter. According to Widodo & Jasmadi (2008) evaluation needs to be submitted so that students are able to measure or evaluate their own learning outcomes. The crochet patterns are presented whole and clued (like the number of chain stitch). The teaching materials are also equipped with glossary to ease the students to find out the terms that exist in the teaching material. Additional information is helpful to increase students' knowledge related to the crocheting field.

## CONCLUSIONS AND SUGGESTION

### Conclusion

The crocheting teaching material for students with hearing impairment in SMALB Kemala Bhayangkari Trenggalek has been through validation test by material expert, learning expert, media expert, and linguist. As the result, teaching material deserve to be a reference in students with hearing impairment crochet learning activities. Teaching material also has passed field trials on students with hearing impairment in SMALB Kemala Bhayangkari Trenggalek. As the result, the teaching material is effective used as a reference in students with hearing impairment crochet learning activities in order to achieve the expected competence.

### Suggestion

Suggestions are given to several parties, namely: (1) teachers are expected to understand the content of crocheting teaching material and provide individual

assistance to students who have difficulty in crochet learning, teachers are expected to provide performance training to students to make students more creative and skilled in crocheting, teachers are expected to develop knitting materials for advanced competencies so that the learning will be more effective, (2) the students are expected to be able to understand the material in the crocheting teaching material and do the exercises as well as the self-evaluation, the students are expected to master the basic technique of crocheting and crocheting a wearable objects independently so that the students have enough skill when they graduate, students are expected to ask teachers or to anyone who mastered the crocheting field when encountering difficulties, (3) Further research is expected to develop crocheting materials on advanced crocheting competence, further research is expected to develop teaching materials with more broadly research subjects and research locations, further research is expected to develop teaching materials until the dissemination stage, (4) the developed teaching materials only tested on three students with hearing impairment of class X in SMALB Kemala Bhayangkari Trenggalek. The results of trials on three students with hearing impairment indicate that teaching material is feasible and effective. But the effectiveness of teaching material has not been tested for more students. Therefore, before the dissemination, the developed teaching materials should be tested on the more broadly research subjects and research locations.

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