DESIGN OF STUDENT’S WORKSHEET BASED ON THE COOPERATIVE LEARNING MODEL TO IMPROVE THE COMMUNICATIVE SKILLS

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Abstract - Communication is one of the important skills in learning in the 21st-century. Learners who have low communicative skills will lead to difficulties in completing the evaluation as well as to the UN about HOTS type that should be resolved. A learning device that does not load communicative skills has an impact on the effectiveness of the learning process. Worksheet learners who are not yet integrated mathematical communication skills will hinder the achievement of learning objectives. This study aimed to analyze the needs of teaching materials that fit the character learners to improve communicative skills. This study uses a qualitative method. Subjects were learners SMP 1 Banguntapan. The research object is thought communicative approach Jigsaw cooperative learning model and worksheets learners. Instrument data collection using observation, written tests, and questionnaires. Analysis of the data using the Miles-Huberman consisting of data reduction, data presentation, and conclusion. The study gives some results. Teachers require teaching materials through the model of learning and teaching materials. Teachers also require teaching materials that integrate thinking communicative skills. The communicative skills of learners are still low. Teachers need instructional materials through the characteristics of learners. Learners have difficulty in learning the material geometrical flat side. Teachers require materials that can improve communicative skills. This research can be developed on the development of learners’ worksheets approach Jigsaw to improve communicative skills.

Index of Terms - Jigsaw, communicative skills, LKPD

1 INTRODUCTION
In the era of globalization, it is very easy for people to make ends meet with them online, thus negatively impact one's ability to lack communication among human beings. The school system must prepare and be ready for the challenges of the 21st century as an era of knowledge. Therefore, students should have a basic competency as citizens of the world in the form of good communication skills, creative, critical thinkers and collaborators, this is due to learners must master multiple media subjects such as official foreign language, art, geography, science and social sciences [1]. The 21st century is also marked by the increasing development of technology and information. Students must have a creative, collaborative, communicative, and critical thinking skills are basic to deal with future changes [2]. The ability to work together is one of the many behavioral cares, which is one aspect of the competencies of social attitudes [3]. Teachers play an important role in determining the success of education in addition to the curriculum, and both affect the quality of formal education [4]. Tasks are implemented well in the classroom, help develops students’ understanding, keep their curiosity and help them to communicate with others about ideas mathematics [5]. Communication as a person's ability to articulate thoughts and ideas effectively; using verbal communication skills, written and non-verbal in various forms and contexts; listen effectively to decipher the meaning, including the knowledge, values, attitudes, and intentions; use of communication for a variety of purposes; use of media and technology and know-how to assess the impact and effectiveness in apriori and communicate effectively in a variety of environments [6]. Communicative competence of students can be assessed based on the following (there are 10 indicators): appropriateness of the speech, language norms, ownership of vocabulary, the coherence of the presentation, accuracy, and expression of speech, pause to complete professional tasks, the use of non-verbal communication, speech and professional ethics, the achievement of communicative purposes, tolerance participants professional communication, resources in emergencies [7].

Mathematical communication can be defined as communication students/ability to deliver something which he knew through dialogue or reciprocity occurs in a classroom environment where there is the transfer of messages displaced message contains material math is learned, concepts, formulas or problems such as solving strategies [8]. The way of delivering the message can be delivered orally and in writing. So that the communication skills of learners can develop properly, then the teacher should be able to use the learning model and the media fairly and accurately to improve communication skills with the idea/ideas presented in the discussion. Summarizing the opinion of some experts NCTM and identify some mathematical communication skills as a) declare a situation, it becomes an image, diagram, language, symbols, expressions or mathematical models; b) mentioned drawings, diagrams, language, symbols, expressions or mathematical models in their language; c) Listen to, discuss, write mathematics; d) Read the presentation of mathematics with understanding; e) Review the mathematical description in his language; and f) Compilation of questions about math through exchanging students’ mathematical communication and explain their ideas or understanding of their friend [9]. Mathematics communication ability can insert and contains a variety of opportunities to communicate in the form of; 1) Telling the real object, image/idea of mathematics, 2) Making model of a situation or a problem with using oral / written, concrete, graphs and al algebra, 3) use of reading, writing and learning to interpret / out ideas, symbols, Teachers play an important role in the implementation of learning so that the
method used must strictly adhere to the class conditions [11]. Learning mathematics should not only deliver memorize in the form of procedural methods in solving mathematical problems but also build an understanding of mathematical concepts being studied [12]. Her concept is to understand one's own ability to return the acquired knowledge in the form of speech or writing to people so that others understand what he said [13]. In the process of learning using group discussion will improve the communicative skills of students as it will be a process to exchange/transfer ideas, ideas, and knowledge is done by subsequently poured spoken language in written form to be declared as a result of the discussion. Communication skills are indispensable in the learning process because learning materials submitted by teachers are not fully received by all the students in the class. Therefore, the discussion groups of students will ask/described by friends who have to understand it first (peer tutoring). In a discussion could occur which do their own dominant clever and less clever tend to be passive, but it must be solved by the teacher. Cooperative learning enables learners to think analytically, critically, enhance their team spirit, self-learning. Definition of cooperative learning model jigsaw is the type of learning model in which every student be a member of two groups, namely the members of the expert group so that students do not get bored because of the discussion during the lessons not only met one group, cooperative learning model enables students to become responsible and foster a desire/attempt to understand the parts of the lessons to be learned and deliver the materials to another group positive among his friends there are different abilities to help friends who have difficulty in understanding mathematical concepts and increase confidence [15]. Jigsaw strategy is a cooperative teaching strategy in Indonesia where the students in small teams responsible for individual learning. Cooperative learning jigsaw also emphasize on facilitating the learner with the opportunity to help each other, to build and understand the tasks be delivered in the classroom, teachers assigned to the Learners to a small team composed of various levels of expertise, each member of the team trying to become "experts" in the room class assigned to the material and then to transform knowledge into other individuals in the group [16]. Aronson stated jigsaw an example of cooperative learning where there are the original group and the group of experts with a wide range of topics of learning, a group of experts responsible for mastering the material to the original group [17]. Techniques known jigsaw to enable students to participate actively in the learning process. One solution to learning, especially junior high school mathematics learning should be accompanied by the use of teaching materials. Teaching materials with the right learning approach would be to support the learning goals [19]. One of the teaching materials in schools are worksheets learners, LKPD is a guide for students in understanding the process skills and material concepts that are and will be studied [20]. The worksheet is defined as a basic tool that contains process steps and helps students to configure their knowledge and at the same time giving the whole class full participation in activities [21]. It has been stated also that the worksheets provide guidance and offer solutions to problems [22]. In model-based learning is required worksheet jigsaw learners. Workshed learner which has been given to the students is not by the learning model used. This study aimed to analyze the needs of the jigsaw cooperative learning model that can improve learners' communicative skills. The analysis is done in terms of the characteristics of learners, curriculum, materials and tasks learners. The author assesses the form of LKPD learning resources used in schools. The value of the validation of 67.62%. As for some of the deficiencies found covering material validation and validation of media. Disadvantages of validation material are (1) LKPD no attitude assessment indicators, (2) LKPD no answer key, (3) LKPD no indicators of achievement of competencies, (4) LKPD no learning models.

2. RESEARCH METHODOLOGY
The method used is ADDIE development that consists of 5 steps: analysis, design, development, implementation, and evaluation [23], [24], [25]. This study is limited to two stages, namely the analysis and design phase. In the analysis phase, the researchers conducted an analysis of curriculum materials 13, learners and learning objectives. Then at the design stage, researchers designed Worksheet Students developed. Furthermore, during the development stage, researchers conducted a validation of products by testing them at SMP Negeri 1 Banguntapan. This study used a qualitative descriptive study. This study includes three teachers and 30 learners grade 8 SMP Negeri 1 Banguntapan. The number of teachers that administer subjects in junior high school mathematics grade 8 1 Banguntapan there are three teachers and each class numbered 30 children. The variable in this study is the communicative skills. Collection instrument data consists of observation, communication skills section, LKPD, about tests and observation sheet enforceability of learning by teachers. The observation guide used to determine the material that is difficult for learners. Percentage mastery of the material about the National Exam Results from 2018 at SMP 1 Banguntapan to make geometry material space includes a flat side of a low material test results (87.56). To determine the extent of the communication skills of learners from everyday observations, there is every discussion group only monopolized by just a smart kid. It can be observed and delivered to the learner's teacher directly. Worksheet learners are delivered in group discussions will measure the communication skills of learners in which of the stages systematically LKPD will reveal how learners' communication through spoken and written language. About the tests are given at the end of learning that includes all material in the gathering. Sheets enforceability of teachers' observations made in the form of a rubric.

3 RESULTS AND DISCUSSION
3.1. analysis
Description of requirement needed to determine the condition of learning. Needs Worksheet-based learners jigsaw cooperative learning model will be discussed further with the analysis of observation, and questionnaires. From the observation of every day, many learners who found mathematics learning by using worksheets learners will be easier for them to understand the subject matter being studied. Worksheet learners contain instructional material contained in the mathematical concept further provided examples of questions practice. From observation, every day LKPD used does not meet the needs of learners, because it contains a summary of the material and exercises just so it
does not facilitate learners in learning. Based on discussions with colleagues associated with LKPD used today, it also not encourage students to develop communication skills. Problems LKPD did learners, in the category of hard done by learners. With the use of worksheets students who integrated communication skills-based cooperative learning model Jigsaw, will be able to increase interest in the learning and communication skills of learners.

3.2. Design
In the design phase, the design of teaching materials based on the results of the needs analysis. The teaching materials used are LKPD. Worksheet learners contain cover, LKPD identity, preface, table of contents, introduction, KI, KD, map position, instructions for use LKPD, LKPD I, exercises and final test of the whole matter at a meeting.

Figure 1 shows the title LKPD (worksheet learners) which also includes subjects, waking material side room flat, jigsaw cooperative models that will be developed for learners and drawing 2. contain foreword.

Figure 7. Loading map concept of LKPD and Figure 8. Loading sheet LKPD

Figure 9. Loading design the ultimate test of learning and drawing 10. Loading test answer key design.

Once validated by a validator some comments aim to improve the design of LKPD that can be seen in Table 1 below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Comment</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Borders too conspicuous. The table of contents is less tight writing numbers right. Problem contextual</td>
<td>already repaired already repaired already repaired</td>
</tr>
</tbody>
</table>

Table 1
Feedback and suggestions form validator

Picture 3 shows core competence and basic competences, while Figure 6 shows indicators of achievement of competencies.
The designs that have been corrected as follows: Figure 1. The line already thinned edge on the cover and in Figure 2. The numbers in the table of contents have been sliding right.

Feedback and suggestions from the validator have been followed up by revising the design LKPD. Results of the calculations related to the design can be seen in Table 2 below:

**TABLE 2**

<table>
<thead>
<tr>
<th>No.</th>
<th>validator</th>
<th>score</th>
<th>category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rosmah, S. Pd</td>
<td>128</td>
<td>Well</td>
</tr>
<tr>
<td>2</td>
<td>Zeni Hernawati, S. Pd</td>
<td>84</td>
<td>Well</td>
</tr>
<tr>
<td>total score</td>
<td>212</td>
<td>The average score</td>
<td>106</td>
</tr>
</tbody>
</table>

From Table 2 the average score for the assessment of media experts is 106 with both categories. Worksheet learners have been validated by a validator and declared fit for use by the revision. Revisions to worksheet learners already implemented. The next stage is to increase LKPD. The fourth step in the ADDIE stage is implementation. At this stage the product that has been developed and meets the eligibility criteria and the effectiveness delivered to schools to be used as a research site. This phase is carried out to ensure that learners can achieve the purpose of learning and communicative skills. ADDIE's fifth step at this stage is evaluation. At this stage is the provision of value in learning from a product program that has been developed.

4 CONCLUSION

Students learn the material difficulties in learning and problem-solving skills of students is low, jigsaw learning model can be used to improve the problem-solving skills of learners. Based on needs analysis worksheet that learners can be concluded that the existing LKPD not appropriate for the type of cooperative learning model jigsaw and did not facilitate learners to improve communication skills. Worksheets learners used as a source of learning in the learning model Jigsaw need to be designed and developed. Designing and development are emphasized to improve the understanding of the subject matter and the communication skills of learners.

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