Students' Mathematical Connection Ability through Learning Strategies Based on Local Wisdom

Andi Muhammad Irfan Taufan Asfar¹, Sumiati², Andi Muhammad Iqbal Akbar Asfar³*, Andi Nurannisa⁴

¹,²,⁴Mathematics Education Department, University of Muhammadiyah Bone, Indonesia
³Chemical Engineering Department, Ujung Pandang State Polytechnic, Indonesia
*Email: andiifalasfar@gmail.com

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Abstract. Students' mathematical abilities are still considered low due to the lack of students' mathematical connection abilities. One effort to overcome the low ability of students' mathematical connections is to involve the culture around students in the learning process. This study aims to analyze students' mathematical connection ability through learning strategies based on local wisdom a'bulo sibatang, assamaturu, mappesabbi, and sipakatau. The research method used is a quantitative quasi-experimental type of nonequivalent control group design. The purposive sampling technique obtained class XI MIPA 3 (experimental class) and XI MIPA 1 (control class). The instrument used is a test for indicators of mathematical connection ability. The result shows that improvement of mathematical connection ability of students who implement learning strategies based on local wisdom better than mathematical connection ability of students without learning strategies based on local wisdom. The improvement in the mathematical connection ability of experimental class students is the high category and control class is the medium category.

Keywords: mathematical connection, learning strategies, local wisdom

Introduction

Mathematics has an important position in realizing human expertise, especially in the fields of science and technology (Sumiati et al., 2019; Wardah, Utomo & Putri, 2021; Asfar & Asfar, 2020), where Namkung et al (2019) dan Sukestiyarno, Mashitoh & Wardono (2021) stated that mathematics has an effect on everyday life with high technology quality as it is today. This is in line with Asfar, Asfar & Sartina (2018) statement that the changing times in the global era do not come out of mathematics, because being ability in technology requires better mathematical ability. However, the mathematical ability of students in Indonesia are still very low, so that Indonesian students cannot compete with students from other countries (Hana, Surahmat & Fathani, 2019; Asfar, Asmawaty & Nursyam, 2019; Ibrahim et al., 2021).

Results of Programme for International Student Assessment (PISA) for Indonesia was announced by The Organization for Economic Cooperation and Development (OECD, 2019) in 2018, showing that students’ ability in mathematics is still low, where Indonesia was ranked 73rd with an average score of 379. Meanwhile, the average mathematics achievement score in OECD countries is 489 (Lanya et al., 2021).

One of the important factors that students in improving their mathematical abilities must master is mathematical connection ability (Prihandhika, 2017; Sumiati et al., 2019). The
A mathematical connection was popularised by NCTM in 1989 and used as one of the curriculum standards aimed at assisting the formation of student perceptions by viewing mathematics as a unity whole as a stand-alone material and recognizing the relevance also benefits of mathematics both at school and outside of school (NCTM, 2013). In addition, Yolanda & Wahyuni (2020) state that mathematical connections are higher order thinking skills, which link between concepts in mathematics both internally, namely related to mathematics itself, and externally, namely mathematics with other fields in everyday life. Connection is very important for students to master, because the ability to connect will make it easier for students to solve problems related to everyday life (Siregar & Surya, 2017; Fendrik, 2019).

The importance of connections in mathematics learning has not been balanced by the mathematical connection abilities possessed by the student. Basically, the student’s mathematical connection ability is still low, this can be seen from the OECD report regarding the results of the PISA relating to student’s ability to solve questions that require a mathematical connection process, only 5.4% or about 95% of students participating in the activity have not been able to associate problems with concepts/principles, associate with other fields of study, or with daily life (Wijayanti & Abadi, 2019; Apryani & Hadiwinarto, 2021; Dudung & Oktaviani, 2020). The low ability of mathematical connections is caused by the learning process in the classroom which still emphasizes the activities of the teacher, students are not very active, and the questions given tend not to vary, so that students have difficulty answering questions related to problems of daily life (Prihandhika, 2017). This is also seen in class XI students of the senior high schools in Bone, South Sulawesi, where the results of interviews with mathematics teachers in class XI obtained information that students have difficulty connecting mathematical concepts and difficulties answering questions related to everyday life problems. Therefore, innovations in mathematics learning are needed to improve students' mathematical abilities, interests and activities (Paneo, 2019; Asfar et al., 2019). One of them is to involve students' culture and life so that learning is more meaningful and students more easily understand mathematical concepts studied in everyday life (Muthmainnah, Ramli & Ikhsan, 2021; Risdiyanti & Prahmana, 2017; Nurannisa et al., 2020). Several researchers have widely studied mathematics learning based on local wisdom, but in improving students' mathematical connection ability no one integrates Bugis-Makassar local culture a’bulo sibatang, assamaturu, mappesabbi, sipakatau.

A’bulo sibatang is a philosophy of a bamboo stick with many segments interpreted as a potent form of unity and togetherness in a group like a bamboo stick (Syaiful, 2019). The meaning of this culture teaches the importance of cooperation in solving problems, where each student certainly has a different level of understanding so that this form of collaboration can support students to share knowledge. Asamaturu means deeper than the meaning of gotong
royong, which emphasizes increasing cooperation which means that every human being helps each other in carrying out an activity to realize a common goal (Rosida, Taqwa & Kamaruddin, 2018). The meaning of assamaturu itself includes a more detailed concept of *a’bulo sibatang*, if *a’bulo sibatang* includes collaborative activities, then assamaturu completes the collaboration with activities to share with other groups. The collaboration process does not only cover one group but also carries out the process of exchanging ideas with other groups. Mappesabbi comes from the word *sabbi* which means witness, so the meaning of mappesabbi is to witness (Radjab, 2014). Watching in the learning process can be interpreted as a presentation process, where each group representative displays or witnesses the results of his group work to provide an overview or equalization of perceptions with other groups. Meanwhile, sipakatau comes from the Bugis-Makassar language which means to humanize human, there is no discrimination and everyone has the same rights (Syarif, et al., 2016; Maida 2016). That is, from the presentation process, each student has the same right to accept or reject the answer given by giving a reasonable reason. The learning strategies of *a’bulo sibatang*, *assamaturu*, *mappesabbi* and *sipakatau* can be used to improve students’ mathematical connection ability. This is because the collaboration process can make it easier for students to connect mathematical concepts with everyday life. Each student has a different experience so that the perception equation makes it easier for students to understand mathematical concepts and relate them.

Bugis-Makassar local culture *a’bulo sibatang*, *assamaturu*, *mappesabbi*, *sipakatau* is integrated into learning to increase students’ creative thinking based on existing character values and local wisdom. Besides that, students can easily understand mathematical concepts that will be learned in everyday life and make learning more meaningful. So that later students learn with their daily examples. The learning strategies of *a’bulo sibatang*, *assamaturu*, *mappesabbi*, *sipakatau* are applied in online learning by transforming the learning process from offline to online. This is because due to the Covid-19 pandemic situation, the student learning process in the classroom must change the method with *learning from home* or learning from home (Kusumaningrum & Wijayanto, 2020), where online learning is the best choice in implementing learning activities and at the same time technology is developing. so rapidly (Gozali, 2020; Asfar, Asfar & Darmawan, 2018; Amin & Murtiyasa, 2021). Rohana & Ningsih (2019) and Yani et al. (2021) stated that information technology could support the development of students’ mathematical ability. Based on this, this research will implement several android applications that can support online learning, such as the zoom meeting application, random generator, meistertask and quizizz. Therefore, this study aims to analyze students’ mathematical connection ability through learning strategies based on local wisdom *a’bulo sibatang*, *assamaturu*, *mappesabbi*, *sipakatau*. 
Method

This research is a quantitative with a quasi-experimental type of non-equivalent control group design. Learning is implemented online, so the class selection is based on the teacher's considerations based on student readiness in online learning. Based on the recommendation given by the teacher, the experimental class was XI MIPA 3, while the control class was XI MIPA 1. The research design can be seen in Table 1.

<table>
<thead>
<tr>
<th>Class</th>
<th>Pre-test</th>
<th>Treatment</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>O₁</td>
<td></td>
<td>O₂</td>
</tr>
<tr>
<td>E</td>
<td>O₃</td>
<td>X</td>
<td>O₄</td>
</tr>
</tbody>
</table>

Based on Table 1, it can be seen that the research design used is the non-equivalent control group design. In this design, two classes are symbolized as C (control class) and E (experimental class). The primary difference between the two classes is that the experimental class is given treatment symbolized by X (implementation learning strategies based on local wisdom). Both classes were given a pretest before implementing the learning process, and the posttest was presented at the end of the lesson. Pretest and posttest, in this case are symbolized by O, namely O₁ pretest control class and O₂ posttest control class. O₃ symbolizes the pretest for the experimental class and the posttest for the experimental class is O₄.

The population of this study was all students of class XI in one of the senior high schools in Bone, South Sulawesi. The purposive sampling technique was used to choose the classes based on the teacher's instruction. This refers to the online learning process, where the teacher permits two classes based on student learning readiness so that the experimental class is class XI MIPA 3 and the control class is class XI MIPA 1 with 30 students each. The experimental class implemented learning strategies based on local wisdom, namely a'bulu sibatang, assamaturu, mappesabbi, sipakatau. While the control class is carried out without learning strategies based on local wisdom and only applies problem-based learning strategies that have been used by teachers so far in learning mathematics with two-variable linear equation systems.

The instrument used in this study is test including indicators of mathematical connection ability, namely linking mathematical ideas, linking mathematical ideas with other disciplines, and linking mathematical ideas with everyday life. The test used has been checked the validity and reliability. From the ten items, five valuable items were obtained with the t-count value more significant than the t-table (1.734) at a significance level of = 5%. The determined r-value is more significant than the r table (0.456), reflecting the test's reliability level, with a significance level of 5%. N-Gain (normalized gain) is used to determine the average improvement in students’ mathematical connection ability before and after learning, while hypothesis testing is used to t-test to test the hypothesis that improvement of mathematical connection ability of students who
use learning strategies based on local wisdom better than mathematical connection ability of students without learning strategies based on local wisdom.

After knowing the t-test about N-Gain of students’ mathematical connection ability, then an analysis was carried out for each indicator of students’ mathematical connection ability. The improvement in students’ mathematical connection ability can be seen from the result of the N-Gain test with the criteria in Table 2 (Nursaniah, Nurhaqi & Yuspriyati, 2018). It aims to measure the achievement of students’ mathematical connection ability in more detail through the elaboration of three indicators, namely linking mathematical ideas, linking mathematical ideas with other disciplines, and linking mathematical ideas with everyday life.

Table 2. The N-gain criteria

<table>
<thead>
<tr>
<th>Nilai</th>
<th>Keterangan</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,70 &lt; g &lt; 1,00</td>
<td>Tinggi</td>
</tr>
<tr>
<td>0,30 &lt; g &lt; 0,70</td>
<td>Sedang</td>
</tr>
<tr>
<td>0,00 &lt; g &lt; 0,30</td>
<td>Rendah</td>
</tr>
</tbody>
</table>

Results and Discussion

The results of the research that has been carried out by applying learning strategies based on local wisdom in the experimental class and learning without learning strategies based on local wisdom in the control class obtained data on students’ pre-test and post-test scores on mathematical connection ability. Based on the results of Shapiro Wilk’s test of normality, the p-value for the pre-test and post-test for the experimental class and control class was less than 0.05, which means the data were not normally distributed. Furthermore, the homogeneity test was carried out on the pre-test and post-test data for the experimental class and the control class, where the test results showed Lavene Statistics for the pre-test was 0.549 (homogeneous) and the post-test was 0.006 (not homogeneous). This shows that there are differences in the improvement of students' mathematical connection ability using learning strategies based on local wisdom (experimental class) and without learning strategies based on local wisdom (control class). The students' mathematical connection ability for each indicator are presented in Table 3.

Table 3. Students' mathematical connection ability for each indicator

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Linking mathematical ideas</th>
<th>Linking mathematical ideas with other disciplines</th>
<th>Linking mathematical ideas with everyday life</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experimental</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>55,35</td>
<td>47,21</td>
<td>40,56</td>
</tr>
<tr>
<td>Post-test</td>
<td>88,52</td>
<td>85,35</td>
<td>83,87</td>
</tr>
<tr>
<td>N-Gain</td>
<td>0.74</td>
<td>0.72</td>
<td>0.73</td>
</tr>
<tr>
<td>Category</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>67,34</td>
<td>58,41</td>
<td>53,69</td>
</tr>
<tr>
<td>Post-test</td>
<td>88,40</td>
<td>78,92</td>
<td>80,21</td>
</tr>
<tr>
<td>N-Gain</td>
<td>0.64</td>
<td>0.49</td>
<td>0.57</td>
</tr>
<tr>
<td>Category</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
</tbody>
</table>
Table 3 shows the differences of students' mathematical connection ability for each indicator in the experimental class and control class before and after the learning process. The improvement in the mathematical connection ability of experimental class students is in the high category, namely the indicators linking mathematical ideas by 0.74 (74%), the indicators linking mathematical ideas with other disciplines by 0.72 (72%), and the indicators linking mathematical ideas with everyday life by 0.73 (73%). Meanwhile, in the control class, students' mathematical connection ability was in the medium category, namely the indicators linking mathematical ideas by 0.64 (64%), the indicators linking mathematical ideas with other disciplines by 0.49 (49%), and the indicators linking mathematical ideas with everyday life by 0.57 (57%). These results indicate that the average value of each indicator of mathematical connection ability has increased, both in the experimental class and the control class.

The difference of the average of N-Gain in students' mathematical connection ability between the experimental class and the control class refers to the results of hypothesis testing using the Mann Whitney test. The average of N-gain, standard deviation, and n for experimental class and control class as presented in Table 4.

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Maximum</th>
<th>Minimum</th>
<th>The Average of N-Gain (%)</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>30</td>
<td>100</td>
<td>35</td>
<td>80.74</td>
<td>15.96</td>
</tr>
<tr>
<td>Control</td>
<td>30</td>
<td>100</td>
<td>27</td>
<td>68.77</td>
<td>31.84</td>
</tr>
</tbody>
</table>

The Mann Whitney test for data in Table 4 obtained p-value = 0.001. This shows that the improvement of mathematical connection ability of students who implement learning strategies based on local wisdom better than mathematical connection ability of students without learning strategies based on local wisdom.

The impact of the Covid-19 pandemic, learning is carried out online using the application zoom meeting as a face to face medium in learning. The stage is a’bulo sibatang where students are formed into several heterogeneous groups using a application random generator. Random generator is an application that can be used in team formation are heterogeneous (Fahrizal & Solichin, 2020). The stage assamaturu is the process of working on assignments in groups by students using the application aligned meistertask as a medium that can manage and track assignments in each place (Adwinda & Pradono, 2020). In addition, it can review time scales, tracking issues and collaboration between users (Lindner, 2020). The stage is mappesabbi witnesses where each group representative the results of group work on the application meistertask. While at the stage sipakatau, the evaluation stage, all students can take quizzes on the application quizizz. Through games interactive quizizz makes students happy when learning
because they are equipped with various games and high interest and motivation can advance student learning outcomes (Anggraeni & Nurjanah; 2020; Solikah, 2020).

Figure 1. Online learning process based on local wisdom

The increase in students' mathematical connection ability can be seen from the results of data analysis post-test students after completing online essay questions. The test in this study consisted of 5 questions covering aspects of mathematical connection abilities, where students' answers were sent via the application Edmodo. The following is one of the post-test questions given to students.

Andi will make a craft in the form of calligraphy from rectangular rice husks if the total length and width of the calligraphy is 32 cm, while the area is 240 cm². What is the height and width of the calligraphy that Andi should make?

Figure 2. Question post-test first indicator

Figure 2 above is one of the post-test questions with indicators relating the mathematical ideas used in the study. When answering these questions, students must relate the rectangular material to a system of linear equations, students identify the problem and perform mathematical modeling by solving a system of linear equations.

A raft made of bamboo moving in the direction of the river can cover a distance of 46 km in 2 hours. If the raft moves against the direction of the river current, it can cover a distance of 51 km in 3 hours. What is the speed of the river flow and the raft’s speed?

Figure 3. Question post-test the second indicator

Figure 3 above requires students to model the given problem in mathematical form by relating it to the velocity formula. Then applying mathematical ideas relationships in problems related to speed material.
Aisyah met her mother during the school holidays, buying fruit at the market. The mother bought 2 kg of mango and 1 kg of pomegranate, and she had to pay Rp15,000, while Aisyah bought 1 kilogram of mango and 2 kilograms of pomegranate for Rp18,000. How much do 5 kg of mango and 3 kg of pomegranate cost?

Figure 4. Questions for post-test third indicators

Figure 4 above is one of the questions with indicators relating mathematics to everyday life. Students must model the given problem in mathematical form and apply it to the solving process.

The pre-test and post-test questions used in this study have the same editorial. On average, students have been able to link between mathematical topics, linking them to other fields of science and everyday life. When analyzing problems students have been able to link between mathematical ideas, then apply the relationship through the problem solving process given and explain the relationship of mathematical ideas in the form of conclusions. The following in Figure 5 is one of the student test results given through the application Edmodo.

The entrance ticket to Bira beach tourist attractions for two adults and three children is Rp28,000, and for three adults and four children isRp40,000. If a husband and wife and their two children travel to Bira beach, what is the total ticket price they have to pay?

Figure 5. Questions for pre-test third indicators

The results above are one of the answers to the pre-test questions students in the experimental class. The student's error in answering is in the ability to relate mathematical ideas in problems related to everyday life, where students' answers are still in the aspect of linking between mathematical ideas, but cannot connect these mathematical ideas with problems of everyday life. Students answered the price of each ticket for adults and children, even though the
question asked was the price of a husband and wife (2 adults) and two children. After the application of based online learning local wisdom leads to students' ability in mathematical connections in solving problem solving. Students showed improvement when viewed from the post-test questions sent in Figure 7.

Figure 7. Answers post-tets indicators relating to daily life

Figure 7 above shows that students have been able to solve math problems related to daily life after implementing based online learning local wisdom. This can be seen when students link everyday life problems given in mathematical form, apply and explain the relationship of mathematical ideas in concluding problems. In addition, online learning based on local wisdom in the form of a'bulo sibatang, assamaturu, mappesabbi, sipakatau is effectively applied in improving mathematical connection ability, where in the experimental class there is an increase after based online learning is applied local wisdom. The stages in online learning based on local wisdom are as follows:

1. A'bulo sibatang

   A'bulo sibatang is a philosophy of a single bamboo stick with many segments interpreted as a form of solid unity and togetherness in a group like a single stick of bamboo. Defend what belongs in a way together (Rosida, Taqwa & Kamaruddin, 2018). A'bulo sibatang in learning can be used as a group formation stage, where group formation uses application random generator
in dividing students into several heterogeneous teams. The division of groups, in this case, is intended to make it easier for students to understand mathematical concepts and relate them to the material to be studied. A real example at this stage is seen when the teacher gives an overview associated with students’ daily lives in buying and selling interactions, which cannot be separated from mathematical concepts in calculating the results of the sale and purchase in question. Each student certainly has different experiences in solving daily problems. Through the a’bulo sibatang culture in the learning process that emphasizes student collaboration, it can make it easier for students to share knowledge. This knowledge sharing activity can indirectly train students’ critical and creative thinking skills in solving problems. This can be seen when students can connect each mathematical concept itself or mathematical concepts with everyday life. From this stage, it can be seen that local wisdom-based learning strategies can improve students’ mathematical connection abilities.

2. Assamaturu

Assamaturu means deeper than the meaning of gotong royong in society, namely upholding the high value of togetherness in thinking, feeling and working to achieve common goals (Rosida, Taqwa & Kamaruddin, 2018). Assamaturu in the learning process can be used as a stage of working on tasks or solving problems in groups. Working on tasks or problem solving in groups using the application meistertask. Assamaturu culture is more detailed than a’bulo sibatang. The a’bulo sibatang culture directs students to collaborate in one group, while assamaturu directs students to exchange opinions with other groups. After students obtain alternative solutions to solving problems from the results of their group discussions, they can make the same perception with other groups through the investigation process. This is so that students are not only focused on their narrow-scale views but also can dig deeper into the information in different groups. The data obtained, of course, can make it easier for students to connect mathematical concepts with other fields that students often encounter. Collaboration between students in one group and other groups during online learning is effortless with the meistertask application. This application is equipped with a comment feature or different responses such as likes and dislikes. In addition, teachers can monitor active students during discussions through the meistertask application.

3. Mappesabbi

Mappesabbi comes from the word sabbi which means witness, so the meaning of mappesabbi witnessing is to witness the results of work in the form so that the truth can be accounted (Radjab, 2014). Mappesabbi in the learning process can be interpreted as the presentation stage, namely the activity of presenting the results of group work that has been done. The applications used are random generator and meistertask. Random generator application so that students who make presentations are evenly distributed so that student learning readiness, in
this case, can be improved. Each student in the group must be ready to accept their respective roles, either as presenters of material, giving rebuttals or giving input to the results of other group discussions. A review is carried out at the end of each debate to make it easier for students to understand the material. The results of this review are carried out individually and sent via the *meistertask* application. *Mappesabbi* culture can indirectly improve students' mathematical connection ability because through the presentation process, the extent to which students' ability to communicate conveys their arguments. The power of students to share is a measure of the time to which students' understanding is related to the material studied. Suppose students can complete everything given. In that case, it can be said that the students' mathematical connection abilities are in a suitable category because they have been able to solve the problems given. Meanwhile, the questions used during the learning process in this study refer to indicators of mathematical connection ability.

4. *Sipakatau*

*Sipakatau* is taken from the Bugis-Makassar language which means humanizing humans, there is no discrimination and everyone has the same rights (Syarif, *et al*., 2016). *Sipakatau* in the learning process can be interpreted as an evaluation stage, students will be given a quiz related to the material that has been studied previously with a predetermined time limit using the *quizizz* application. The results of this evaluation as a form of assessment of student learning outcomes, especially on the ability of mathematical connections. *Sipakatau* which means humanizing, means that every student can provide input on the evaluation results obtained, whether they can accept or reject the results with valid reasons. Learning in this case, does not only refer to student learning outcomes but also emphasizes the process it goes through, where mathematical connections prove that students can apply mathematical concepts in solving each problem. In equalizing perceptions, namely expressing the results in the form of rebuttals, students are expected to be able to tell them in polite language by upholding the character values contained in this local culture. The use of the *quizizz* application at this stage can make it easier for teachers to determine students' mathematical connection abilities because they have a time limit in the completion process. The faster students solve problems, the more students understanding levels relate to mathematical concepts.

The results show that students have been able to connect topics between mathematics, connect math topics with other fields of science, and connect math topics with everyday life. In addition, through online learning based on *local wisdom*, students become active, where students can exchange ideas with their group friends and implement the knowledge they have gained. At the same time, the teacher acts as a facilitator and motivator. In line with what Putra, Lutfiyah & Laili (2019) stated that-based learning *local wisdom* can improve students' mathematics learning
outcomes. Local wisdom-based learning influences students’ creativity and learning outcomes (Pamungkas, Subali & Lunuwih, 2017; Monita, Narulita & Budiarto, 2021). In addition, Apsari & Rizki (2018) state that android can be used as a medium to support the mathematics learning process. Android-based learning media can attract students’ interest in the learning process, where learning is more fun (Zakiy, Syazali & Farida, 2018; Asfar et al., 2019). Several previous studies have integrated the local wisdom of *a’bulo sibatang, assamaturu, mappesabbi, sipakatau* in the learning process. Still, no one has ever integrated it into mathematics learning online or based on android. The application of local wisdom-based learning strategies in improving students’ mathematical connection ability impacts student learning outcomes, including students’ mathematical abilities. Through a series of learning stages on the design of *a’bulo sibatang, assamaturu, mappesabbi, and sipakatau*, students’ mathematical connection abilities can be improved by various variants of questions match the indicators of mathematical connection abilities. This learning process indirectly trains students to collaborate between students and groups. In addition, discussions with other groups can instil character values in students, such as a sense of responsibility in expressing opinions during the presentation process. This series of lessons provide an overview of the student-centred learning process, where students are active during the learning process, and the teacher only acts as a facilitator and motivator.

In addition, the use of *meistertask, random generator* and *quizizz applications* has never been applied to mathematics learning in improving students’ mathematical connection ability. Several studies so far have only examined students’ mathematical connection abilities in the face of face-to-face learning. The process that applies contextual media to make it easier for students to understand mathematical concepts has not improved students’ mathematical connection abilities because knowledge is still teacher-centred. This is increasingly difficult to achieve when learning online, where only some students are active, and other students cannot connect mathematical concepts in the learning process. The application of several android applications in the online learning process can attract students’ interest in learning and create a new beginning in applying technology that has been increasing. Therefore, online learning based on *local wisdom a’bulo sibatang, assamaturu, mappesabbi, sipakatau* using *meistertask, random generator* and *quizizz applications* can be a new thing in the learning process, as well as can be used as an alternative in improving students’ mathematical connection ability.

**Conclusion**

Online learning based on local wisdom *a’bulo sibatang, assamaturu, mappesabbi, sipakatau* involves students directly in learning to build students’ attention and interest and practice problem solving ability and connect. In addition, the use of several applications such as
the application *zoom meeting, random generator, meistertask* and *quizizz* realize the creation of work between groups. It will be fun with the efficiency of operating time. The result shows that improvement of mathematical connection ability of students who implement learning strategies based on local wisdom better than mathematical connection ability of students without learning strategies based on local wisdom. Thus, to improve students’ mathematical connection ability, mathematics learning is recommended to implement online learning based on *local wisdom a’bulo sibatang, assamaturu, mappesabb*, sipakatau.

**References**


