
Research Article

Collaboration and Communication Skills in Problem-Based Learning in Basic Tax Competencies

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Abstract: Collaboration and communication skills are needed for students during economics learning. Therefore, this study aims to analyze collaboration and communication skills in problem-based learning in the basic competencies of taxation. The research method used quantitative descriptive research to deal with the research purposes. The results of this research showed that the overall average indicator of students' collaboration skills was in sufficient category, and the overall average indicator of students' communication skills was in the high category. In addition, students' response to learning economics using problem-based learning is good. Almost all students can understand the material in the teaching and learning activities in the basic tax competencies, especially within groups. The recommendation in this study is that teachers need to improve their ability to form creative and innovative learning in problem-based learning. Another recommendation when designing the learning, the suitable learning model is needed to encourage student collaboration and communication.

Keywords: collaboration skill, communication skill, problem-based learning

INTRODUCTION

Education in the 21st-century has developed rapidly and has brought about a new paradigm shift in learning. According to Rahayu et al. (2022), a new paradigm shift occurred in 21st-century education, marked by developments in technology, media, and curriculum. This shows that the development of 21st-century education provides unique challenges for educational institutions. One of the new challenges in education is that education needs to create competent human resources that can adapt to the changes and digitalization (Abidin, 2018). Therefore, education is expected to develop quality human resources by having comprehensive skills to answer these new challenges. The students in 21st-century learning should have comprehensive skills because they will eventually be required for social life.

The 4C skills of the 21st century include collaboration, communication, critical thinking and problem-solving, creativity, and innovation (Marlina & Jayanti, 2019). Economics is a contextual subject that requires 4C skills. According to Kasnelly et al. (2022), economic subjects have the characteristic trait of beginning with a phenomenon, where the economic behavior of the social life is the source of this subject. This indicates that economic subjects are relevant to daily life, and the subject material is complex. Taxation materials are a complex topic that students studying economics must understand. Taxation material has some characteristics that make it difficult for students to study individually. Hidayah et al. (2017) noted that taxation material has a broad

material study, and students must be able to explain tax concepts and calculate tax imposition. Therefore, students must be adept at collaboration and communication to solve difficulties and comprehend the materials.

Collaboration skills are one of the skills that need to be instilled in students during learning activities. Collaboration skills are students' skills in the 21st-century, where students work in groups to improve their ability to cooperate with others (Evans, 2020). Students reflect on collaboration skills when several components can be met, including having personal responsibility for contributions to group assignments, interacting in groups effectively, managing the division of tasks in group activities, and working together to complete tasks (Laura & Olivia, 2020a). Students who collaborate with their peers can overcome difficulties in solving a problem and build effective communication skills with their peers.

Communication skills also need to be instilled by students during learning activities. Communication skills are skills in terms of conveying ideas or information. According to Zubaidah (2018), communication skills are individual skills in expressing new ideas, knowledge and information orally and in writing, and include listening, writing, and public speaking skills. Students reflect on communication skills if several components can be met, including using standard language, being able to communicate in open conversations, and to participate confidently and actively. A prior study also noted that communication skill is crucial for teaching and learning processes, and any hindrance to communication can affect the learning process (Taylor et al., 2014). Studies have shown that undergraduate learners have developed strong communication abilities, indicating the bright future of communication skills in education (Iksan et al., 2012).

The learning model is a central part of the learning process. One learning model that can encourage students to collaborate and communicate is the problem-based learning model. This is supported by the opinion of Rusman (2017), who states that one of the characteristics of the problem-based learning model, which is collaborative, communicative, and cooperative activities, is highly emphasized by students during the learning process. A previous study has proven that introverted students can collaborate with other friends through a culturally responsive teaching approach and are motivated, brave, and confident to express their opinions to peers and teachers (Taher, 2023).

Considering that the problem-based learning model can encourage students' collaboration and communication skills, studies on this theme are also increasing. For example, Najah and Rahmat (2022) stated that the collaboration skills of students are in the high category. Meanwhile, another research by Putri et al. (2016) stated that students' written communication skills obtained a high percentage and students' oral communication skills. Few previous research has directly examined the two skills in the problem-based learning model. Generally, previous researchers only analyzed one skill in one learning model. Therefore, this research analyzes collaboration and communication skills in problem-based learning. This research highlights students' collaboration and communication skills when implementing problem-based learning. These findings will contribute to academic knowledge and provide practical implications for educators and other readers.

The first part discusses the background of the research, while the second part explains data collection and data analysis techniques. The third section discusses the results and discussion of the research that has been conducted. The last section discusses the conclusions, suggestions, and implications of the research.

METHOD

Research Design, Procedures, and Data

This research adopted the quantitative descriptive method to analyze students' collaboration and communication skills in problem-based learning in the economics subject of taxation in economic development. This research was conducted at SMAN 1 Tanggul Jember in Indonesia. The authors determined the research location based on the purposive area method, which the researcher deliberately chose. This study involved three social sciences studies classes, each consisting of 28 students. In one selected class, students are divided into five groups with a membership of 5–6 people. The data in this research was obtained from primary sources by observing collaboration and communication skills during group discussion activities on the theme of taxation in economic development. The data source obtained was an observation sheet for indicators of students' collaboration skills and communication skills. Then, secondary data was obtained from supporting data in the form of student learning outcomes from grade notebooks and student worksheets during learning.

Measurement

The instruments in this research were used to obtain data and as a reference to analyze students' collaboration and communication skills in problem-based learning in economic subjects' basic competencies of taxation. There are several data collection instruments, including (1) observation sheets of collaboration and communication skills as primary data sources, containing four indicators of collaboration skills and three indicators of communication skills. This sheet has been filled with a checklist of the observed indicators, which the observer will assess using a rubric of collaboration and communication indicators; (2) interview sheets to gather opinions from economics teachers and students on the problem-based learning model; and (3) other supporting documents to get information about the research. Table 1 and Table 2 provide indicators of collaboration and communication skills with several components observed.

Table 1

Indicator of collaboration skills

No	Indicator	Component	Activity
1.	Taking personal responsibility for contribution to a group task	Actively contributing to a task Taking on different roles	Students express opinions during discussion. Students show flexibility to take on different roles in completing group tasks.
2.	Effectively interacting in a group task	Listening and responding respectfully Establishing ways of working together Engaging and supporting the opinions others	Students listen and respond with an open mind to a variety of ideas, including opposing viewpoints and arguments. Students discuss the best way to collaborate on the task, e.g., assigning time for each group member to complete the task. Students invite another group members to share their ideas and opinions during the discussion.

No	Indicator	Component	Activity
3.	Managing the sharing of tasks in a group activity	Manage the distribution of group tasks	Students participate in the allocation of tasks that are fair and appropriate to the skills of each group member.
		Agreeing what needs to be provided	Students incorporate ideas from other group members and come to a common agreement.
4.	Working together to complete tasks	Ensuring progress towards a goal	Students motivate another group members to stay focused on the task despite distractions or obstacles.
		Identifying issues and challenges	Students recognize problems or obstacles that occur during group discussions.
		Resolving issues	Students compromise to solve problems in the group.

Source: Adopted from Laura and Olivia (2020a)

Table 2
Indicator of communication skills

No	Indicator	Component	Activity
1.	Using standard language	Using language appropriate for the situation	Students express opinions with appropriate language.
		Using a variety of language and communication strategies to achieve desired goals	Students use varied communication, for example asking to find out something or using intonation when talking to the other person.
		Adapting language use according to different cultures and social groups	Students show understanding of which topics are appropriate for conversation in different contexts.
2.	Able to communicate to open a conversation	Using communication strategies to facilitate conversations	Students use simple communication techniques to start a conversation.
		Using strategies for overcoming language gaps and communication breakdowns	Students use alternative words so that others understand.
3.	Participating with appropriate confidence and clarity	Structuring spoken and written texts effectively	Students use accurate and contextually appropriate examples in completing tasks both orally and in writing with logic and clarity.
		Using appropriate language and presentation styles with confidence and fluency	Students tell or describe something clearly.

Source: Adopted from Laura and Olivia (2020b)

Data Analysis

The data analysis method uses a descriptive approach with percentage techniques. The data obtained is analyzed by describing and interpreting the data that has been processed. The stages of analyzing students' collaboration skills include: observe the students' collaboration and communication skills by giving a checklist (√) on the observation sheet if the student fulfills the assessment components for each indicator of collaboration and communication skills; adding up the scores obtained by each student from each indicator of collaboration and communication skills; calculate students' collaboration and communication skills using the following formula from Arikunto (2013).

$$\text{Descriptive Percentage} = \frac{n}{N} \times 100\%$$

N = Maximum total of scores

n = Total of scores obtained

The value obtained is interpreted to determine the level of students' collaboration and communication skills, then converted into categories according to Widyoko (2017), as shown in Table 3.

Table 3

Category for students' collaboration and communication skills

No	Collaboration and communication skills level (%)	Category
1.	68–100	High
2.	34–67	Sufficient
3.	0–33	Low

Source: Adopted from Widyoko (2017)

The researcher analyses the average assessment results of each indicator's observation sheet to determine the students' collaboration and communication skills level if the student's score is known. The results of the data analysis are in the form of descriptions of student collaboration and communication skills data, supported by data from interviews with teachers and students to be presented in the discussion.

RESULT

Based on the research on the analysis of collaboration and communication skills in problem-based learning of students in economics with subject of the basic competence of taxation, the research data of students' collaboration skills are presented in Table 4. In contrast, the data on students' communication skills are provided in Table 6.

Collaboration Skills

Students' collaboration skills in this research include four indicators consisting of indicators of taking personal responsibility for contributions to group task, effectively interacting in a group task, managing the sharing of tasks in a group activity, working together to complete tasks. Table 4 provides information about the percentage acquisition of each indicator.

Table 4*Recapitulation of collaboration skills of students*

No	Indicator of collaboration skills	Percentage
1.	Taking personal responsibility for contribution to a group task	82.14%
2.	Effectively interacting in a group task	64.28%
3.	Managing the sharing of tasks in a group activity	58.92%
4.	Working together to complete tasks	61.90%
Average		66.81%

Table 4 illustrates that the average collaboration skills of students are in the sufficient category with a percentage of 66.81%. The indicator with the highest percentage lies in the indicator of taking personal responsibility for contribution to a group task, while the indicator with the lowest percentage is managing the sharing of tasks in a group activity. Students' collaboration skills can also be interpreted in groups when they conduct discussion activities in the field. Based on Table 5, it can be concluded that the students' collaboration skills in groups have different categories. Among the five groups, only two groups that have collaboration skills in the sufficient category.

Table 5*Collaboration skills of students*

Group	Percentage	Category
Group 1	57.63%	Sufficient
Group 2	65.27%	Sufficient
Group 3	69.43%	High
Group 4	73.33%	High
Group 5	69.99%	High

Communication skills

During teamwork in solving problems, of course students need to communicate. Communication skills in this study include three indicators: (1) using standard language, (2) able to communicate to open a conversation, and (3) participating with appropriate confidence and clarity. Table 6 informs the percentage acquisition of each indicator of students' communication skills.

Table 6*Recapitulation of communication skills of students*

No	Indicator of communication skills	Percentage
1.	Using standard language	80.94%
2.	Able to communicate to open a conversation	49.99%
3.	Participating with appropriate confidence and clarity	91.06%
Average		73.99%

Table 6 shows that the average communication skills of students are in the high category with a percentage of 73.99%. The indicator with the highest percentage lies in the component of participating with appropriate confidence and clarity, while the indicator with the lowest percentage lies in the component of able to communicate to open a conversation. Students' communication skills can also be interpreted in groups when they conduct discussion activities in the field. The following is a table of students' communication skills in groups. Based on Table 7, students' communication skills in

groups have different categories. Among the five groups, only one group has communication skills in the sufficient category.

Table 7
Communication skills of students

Group	Percentage	Category
Group 1	66.66%	Sufficient
Group 2	78.70%	High
Group 3	71.29%	High
Group 4	82.22%	High
Group 5	72.22%	High

DISCUSSION

The results indicated that collaboration and communication skills in problem-based learning in economic subjects and basic competence of taxation showed different results. Student's collaboration skill showing that the result is in the sufficient category and student's communication skill showing that the result is in the high category. During discussion activities, students are less focused on teamwork and students still show individualism. The individualistic attitude of students is seen when, after the division of groups that have been determined, they have not been able to accept to enter the group.

Based on observations during the field, researchers observed that the division of groups during learning was still uneven. Teachers divide groups based on attendance without looking at each student's characteristics, causing student's abilities to be uneven in each group. The uneven ability of students in this group causes students to feel uncomfortable with friends in the group. Thus, this affects the active behavior of students in the group during discussion activities. According to Sufajar and Qosyim (2022) research, active collaborative behavior can be observed based on an activity including forming a team, cooperating, solving problems during discussions, communicating, and managing team differences, which can be seen from students' involvement during discussions. If students have not been able to accept to join the group that has been determined, then student teamwork will not go well.

Individualistic attitudes are also seen in students when they are less able to manage the division of tasks well. This was also influenced by the teacher's uneven division of groups so that they still needed to find a match between each other. In line with research by Taryono et al. (2019), one of the causes of low student collaboration is that students have not been able to organize work planning in groups because students still do not feel compatible with other group members. In addition, Le et al. (2018) in their research also proved that students' obstacles to collaborating effectively were shown in groups where only a few students worked while others did not try to complete their own tasks and this had a negative impact on students' collaborative experience.

Based on observations in the field, researchers observed that the group leader and task distribution did not lead the management of task distribution carried out by students who had high skills and knowledge in the group. Students with high skills and expertise in the group solve the given problems. Then, the group leaves students with sufficient skills and expertise passive. This unfair and uneven management of task distribution causes students with a quiet primary character to remain silent and inactive. Passive students mostly just follow the group workflow without being involved in the discussion process. This is in line a prior study by Junita et al. (2021), which proves that most silent

students in discussion activities only follow the group workflow and accept the collective agreement.

Students are required to show their teamwork in solving problems in problem-based learning. If students still have an individualist attitude, it can have a negative impact on student teamwork. This is in line with what Fisikawati et al. (2018) conveyed in their research that individualist attitudes that are allowed to grow in students will have a negative impact on these students, such as loss of solidarity among others, difficulty in Socializing, and unlimited egoism.

In addition to individualistic attitudes, other factors also cause students' collaboration skills to be in the sufficient category, namely the teacher himself. The teacher did not encourage passive students to get involved in group investigation activities in solving problems. Thus, passive students only follow the group workflow. Teachers are expected to improve their ability to design problem-based learning to encourage students' collaboration skills. Hartina et al. (2022) stated that when teachers can enhance their ability to develop problem-based learning, students can construct their knowledge actively through engagement with the learning environment created by the teacher as a learning facilitator. This also aligns with Piaget's view (Arends, 2013) that students will be actively involved in building their knowledge and obtaining information in problem-based learning.

The collaboration skills of students are in the sufficient category can hurt the learning process. The learning process becomes less meaningful, causing students to be unable to understand the material presented. During teamwork in solving problems, of course students need to communicate. However, researchers observed that the high level of communication between students did not affect their collaboration abilities. The research results show that students' overall communication skills are in the high category. If viewed by a group, only one group has adequate communication skills. This is because the students in the group cannot communicate fluently. The factor that causes students in the group to be less fluent is the language factor. In line with research conducted by Musliah et al. (2015) proves that the communication skills of students with their peers studied are in the sufficient category, this is due to one of the factors, namely the use of language that is still not appropriate and still not easy to understand. Thus, the communication process in discussion activities becomes less effective and less than optimal.

The high communication skills of students are due to the extroverted characteristics of students. The characteristics of these extroverted students give them high self-confidence. Field observations showed that students could confidently explain ideas based on their daily experiences, so this encouraged smooth student communication. In line with research conducted by Hamia et al. (2020), two factors influence high student communication, and one of the factors is internal factors, including student confidence, where confident students can convey ideas and opinions. Deni and Ifdil (2016) also prove that students' self-confidence arises when they have confidence in their abilities and can take responsibility for their actions.

The confidence that grows in students also affects students when describing something clearly and fluently. Based on observations in the field, students were able to describe the problem-solving obtained from the results of group discussions clearly and in context. However, some students are still not fluent in communicating, so they have difficulty providing explanations in a language that is easy to understand. When students can describe problem-solving clearly, then they show good communication. Gustiani et

al. (2017) stated that effective communication can be seen from the suitability of ideas with the theme. This is also supported by research conducted by Ramadina and Rosdiana (2021) that students have good communication when they can express their opinions using language that is easy to understand, write problem-solving in their language and are easy to understand, and write problem-solving correctly.

Communicative students can have a good impact on their learning success. Of course, if, during the learning process, students communicate well, their ability to understand the material will also be good, in line with the opinion of Wati et al. (2019), who stated that students' communication skills in learning are good when students also succeed in understanding the lesson well. Thus, students' communication skills in problem-based learning need to be maintained. Problem-based learning model can develop students' communication skills to lead to effective learning.

One of the efforts to encourage students' collaboration and communication skills in problem-based learning can be done through the habituation of group discussion activities. The habituation of group discussion activities can bring attitude changes in a positive direction because students who learn in groups can remember more optimally related to what has been discovered than learning individually. This is in line with the statement made by one of the students during the interview that students feel easier to understand the material and more enthusiastic in doing the questions. In addition, they feel learning with a group is fun and enjoyable. later, discussion activities in problem-based learning can foster students' ability to cooperate and communicate in all directions. Students will learn to communicate what they want to convey well and clearly (Rahmawati & Dwikoranto, 2022).

CONCLUSION

Based on the results and discussion of the research, collaboration and communication skills in problem-based learning in economic subjects of basic competencies of taxation in economic development, show different results. Collaboration skills of students showed results with the category of sufficient, with a percentage of 66.81%, and communication skills of students with the category of high, with a percentage 73.99%. This research recommends that students are expected to improve their collaboration skills and maintain their communication skills. In addition, teachers should also enhance their ability to design creative and innovative learning in problem-based learning. Another way is to use the suitable learning model when planning lessons to encourage students' collaboration and communication skills.

Implication

Based on the findings obtained, using problem-based learning models is appropriate for learning the economics of taxation material. Taxation material seems complicated but tends to have discussions based on problems around students, encouraging students to be communicative to solve the problems given during discussion activities. However, teachers must improve their ability to design problem-based learning to form creative and innovative learning when implementing learning in the classroom. This, of course, aims to make students actively involved with the learning environment that the teacher has created. Thus, based on the research results that have been described, it shows that problem-based learning models can affect students' collaboration and communication skills. Students are required to be actively involved in collaborative

activities. Collaborative activities can help students to solve a problem. Students can express opinions or ideas in their groups, which can foster feelings of pleasure in students and make it easier for them to understand the material so that students are more eager to learn.

Limitation and Future Direction

A limitation in this research is that this research sample only involved one class at a high school in Jember of East Java in Indonesia. It is expected that future researchers will be able to consider or expand the number of samples to be used or continue research regarding the analysis of other 4C skill variables, such as creative thinking and critical thinking skills or these four variables simultaneously with different research methods.

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