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Innovation of Mathematics, Science, and Education Research for Sustainable Development



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Students' Communication Skills of Biology Education Department of Riau Islamic University Indonesia

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Abstract— Communication skills are abilities that a person expresses thoughts, ideas, knowledge, or new information owned both verbal and nonverbal forms. These communication skills are essential to be possessed by students as a provision in doing various activities. The purpose of this study is to determine the communication skills of students of Biology Education Department of Islamic University Riau, Indonesia. The research method is a survey of 79 participants. To measure the students' communication skills, the researcher used a scoring rubric, which refers to the Common Core State Standards (CCSS). The communication skills aspects studied are speaking, writing, listening and nonverbal. The results showed that the aspects of communication skills from the highest to the lowest consecutively are speaking (75.21, good), listening (71.04, fair), nonverbal (70.73, fair) and writing (68.95, fair). Overall, the score of students' communication skills is 71.48 with the fair category. The students' skills need to be improved, especially in the aspect of writing in order to enhance students' communication skills, for instance through appropriate learning strategies

Keywords— communication skills, students, biology education

I. INTRODUCTION

The existence of the university is aimed to prepare students to become members of the community who have the ability to communicate academically and professionally. The role of universities in producing graduates in various fields is to meet market needs which is not only focused on academic achievement but also generic skills such as communication skills.¹⁾ Therefore, the students in the 21st century are expected to be part of a culture that values participation with many opportunities to start, produce, think critically, creatively, communicate, and work together.^{2,3)} If today's students want to compete in a globalized world then they must be able to become

proficient communicators^{1,4)}, have creativity, be able to think critically, and cooperate in accordance with the 21st century framework.⁴⁾ This framework describes the skills, knowledge, and skills that must be mastered so that students can be successful in their life and work.⁵⁾

Students need communication skills. Communication skills is a necessary skill to express thoughts, ideas, knowledge, or new information that is owned in the form of verbal and nonverbal. Through communication skills, students can remove communication barriers so as to communicate effectively.⁵⁾ Effective communication has been widely accepted as the basic skills needed to succeed in the workplace.^{7,8)} Students who have the knowledge and skills to negotiate with change will be able to adapt to the new situation.⁴⁾

Communication skills have a meaning as goal-oriented actions or sequences of actions that we can master and repeat in appropriate situations. An individual must have good communication skills and impact among recipients.⁸⁾ Effective communication skills are essential for students as prospective educators in classroom management and classroom interaction. The ability of educators in non-verbal communication such as expression plays an important role in learning activities.⁸⁾

Biology students as part of the community not only have the knowledge to communicate but also they must also have the skills to communicate effectively to be able to contribute to the social environment. Therefore, to bear students who are competent in performing certain roles, the student must obtain the provision of communication skills during the learning process.^{1,10)} Learning activities are essentially communicative activities. During the learning process, between lecturers and students are involved in the process of delivering messages, using media, and receiving messages.

Messages sent in the contents of the subject matter are poured into the symbols of communication both verbal and nonverbal.⁹⁾ The easiest way to explain communication through the general meaning is the means to get messages from one point to another. In fact, some initial opinions about communication emphasize the way messages are delivered.¹¹⁾

Common Core State Standards (CCSS) identifies several components of communication skills that are: 1) identify and use different types of verbal, communication such as conversation, debate, and persuasion, 2) engage in constructive dialogue with others, demonstrate communication skills such as attention, listening and understanding) involves skills in identifying, using and understanding various types of written communication such as formal, informational, and scientific, 4) paying attention and listening to various types of media for various purposes. Produce effective communication through various media such as oral, written, visual, nonverbal and technological, 5) using persuasive communication such as expressing views and choice neutrally.¹²⁾ Communication skills include verbal communication, written communication, social communication.¹⁾

Communication patterns in the learning and learning environment, between lecturers and students, students with students need to be well nurtured. During the lecturing process, the lecturers need to give the opportunity to the students to express their idea. Several previous studies have examined the students' communication skills showing that these skills are still low and need to be improved through various learning strategies.^{13,14,15)} If the opportunity given to the students is still lacking as if only certain students are active in the learning process.¹⁶⁾ In the end, they graduate with knowledge of science but do not know how to use communication skills.^{17,18)} Student communication skills can be improved through training,^{19,20,21)} and simulated sequentially,¹⁹⁾ through appropriate curriculum so communication skills can be achieved correctly at the time of graduation.²²⁾

The idea of the importance of communication begins with the idea that the problems experienced by humans can be caused by poor communication and can be solved with better communication. Communication skills are elements of a cultural pattern that has developed in certain historical circumstances in close connection with social practices related to modernization and globalization. Communication skills as technical skills can be improved by applying certain principles and techniques.¹¹⁾ The quality of communication is related to the activity and interaction between teachers and students.²³⁾ Learning communication skills can be forgotten if not applied and applied.²⁴⁾

Given the urgency of communication skills in determining one's life, then these communication skills need to be known as a provision in undergoing various activities undertaken. Information about the communication skills of students of Biology Education Program of the Riau Islamic University, Indonesia so far is unknown because no research has examined it. Based on the background, it is necessary to do research on student communication skills at Biology Education Program of Riau Islamic University

II. METHOD OF THE RESEARCH

Descriptive research that has been conducted at Riau Islamic University by using the population of all students of Biology Education Program at Riau Islamic University. The sample of research is a student of Biology Education Study Program which follows the subject of Human Anatomy of Physiology with the number of students 79 people. The acquisition of communication skills data using an assessment rubric using scale 1 to 4 to show student achievement in each indicator of measured communication skills. The communication skills indicator used to assess communication skills is seen in Table 1

TABLE 1. Communication skills indicator

No	Aspek	Indikator
1	Speaking	Content Presentation Organization
2	Writing	Content Organization Syntax and grammar Display
3	Listening	Response Paraphrase dan Syntax
4	Non-Verbal	Attitude Gesture

Data on students' communication skills that have been collected through the observation sheet are then analyzed. Data analysis is done by calculating the scores that have been achieved by students for all indicators using the following formula

$$N = \frac{SC}{SM} \times 100$$

Information:
N = Value
SC = Achievement score
SM = Maximum score

After that, the results of the calculation of the value of communication skills are interpreted into several categories that are excellent (86-100), good (71-85), sufficient (51-70), and less good (≤ 50).²⁵⁾

III. RESULT AND DISCUSSION

Communication skills students in this study consist of four aspects of speaking, listening, nonverbal and writing. The results are presented in Table 2.

TABEL 2. The Value of Communication Skills

No	Aspect	Score	Category
1	Speaking	75.21	Good
2	Listening	71.04	Good
3	Non-Verbal	70.73	Good
4	Writing	68.95	Fair

Aspects of communication skills that occupy the highest score are speaking (75.21) while the lowest aspect is writing (68.95). The speaking aspect of the students is at the highest value because it is relatively easy to deliver orally, and has

been done from the beginning while the writing aspect occupies the lowest score because written communication requires perseverance and practice to master it. One study in Poland found that students had greater difficulty in written communication than orally. In this case, students need help in organizing and organizing the structure of reports and arguments.²⁶⁾ People have communicated since humans existed, especially oral traditions that are still done today.¹²⁾

The speaking aspect has three indicators: content, view, and organization. Figure 1 can give details of each indicator of the speaking aspect

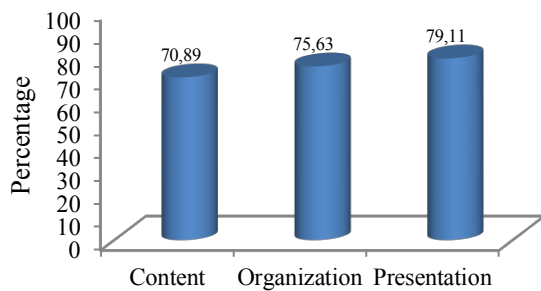


FIGURE 1. An indicator of Communication Skills for Writing Aspect

Figure 1, when viewed in more detail, it can be seen that the content indicator is much lower than other indicators. The low achievement of students on this indicator because they have not been able to show a comprehensive understanding of the topic presented. For example, when students convey an explanation of the physiological formation of urine, students should be able to explain its association with various other body systems. But the reality of the students is that they only focus on the material delivered that day. When interpreting the content of speech, it actually means the whole of the delivered.²⁷⁾ The content of the communication involves what is said, planned, or decided in an interaction.²⁸⁾ Bakhtin states when building speech, the thing done is to try to actively determine the information conveyed so that in turn, has an effect on the utterance. Another thing that needs to be considered is to determine the choice of speech, composition device, and finally, the choice of means.²⁷⁾ Verbal presentation of ideas has a lower average even though this is the most widely used skill during discussion and presentation.¹⁾

The viewing indicator on the speaking aspect is already in the good category (79.11). This indicator shows a good category because when students perform the presentation, they have used visual aids such as video and picture so that it helps in appearance and makes it easier to convey the topic. Topics or messages delivered in the course Anatomy of Human Physics requires a video in the explanation so that the lecturer of the subjects taught the students to display the videos and pictures. Elements in the communication process determine the quality of communication. Selection of certain media for message transmission is important in communication.²⁹⁾ In addition to media usage, another criterion that makes the display aspect higher is the sound that sounds clear. Intonation gives a general meaning of the whole speech. Intonation can be oriented in two directions ie toward the listener and toward the object of speech.²⁷⁾ The

volume, tone, velocity, and words used when conveying a message to others are aspects that need to be addressed in spoken communication.²⁸⁾

The results of the research on the listening aspect (Figure 2) consist of two indicators of response and paraphrase. The response indicator on listening aspect is higher than paraphrase indicator. The response shown by the students in the form of responding to the question posed so that other students can believe that delivered. Listening skills can be demonstrated through interest and attention to what is being said.¹⁾ Students also focus on what is delivered by other students. When another student asks a question, the student listening to the question is listening well. This shows that students have a good response in listening skills. According to Lunenberg,²⁹⁾ not everyone appreciates the importance of listening skills is not even caring enough to become actively involved with what people say, and not motivated to develop this skill

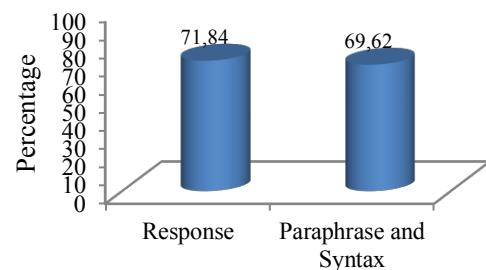


FIGURE 2. An indicator of Communication Skills for Listening Aspect

The low value of communication skills in paraphrase indicators (Figure 2) because when students listen to questions and opinions from other students, they have not been able to summarize the information that has been heard and resubmit it well. Listening skills are not only a response but also related to the ability to understand information. Students need to show readiness to listen and give attention as others speak. With that, they will be able to remember what has been presented, identify key issues and give meaning What is being presented Listening requires acceptance and correct understanding of the other person's communication, identifying key issues and giving meaning to what is delivered.¹⁾ and without effective listening skills, messages can be distorted or ignored causing communication processes to fail.²⁶⁾ Oral communication is a collaborative process so that limitations in the ability to appreciate others' perspectives need to be avoided.³⁰⁾

The next aspect of communication skills is nonverbal. This aspect consists of two indicators of attitude and gesture (Figure 3). The values for both indicators of attitude and gesture are not much different. The value of both indicators is an insufficient category. This means that students have not shown good communication skills for both indicators. The low score on the indicator because when the students do the presentation, the students focused more on the slide power point so as not to attract the attention of the audience by making eye contact or movement of other body parts in communicating. Communication skills require the ability to convey verbal information reinforced by non-verbal communication so that the information can be received well. Nonverbal movements such as facial expressions and body

postures can send messages or information,^{28,29)} nonverbal communication includes important but unspoken signals exhibited by individuals such as appearance, eye contact, hand gestures and facial expressions.^{28,31)}

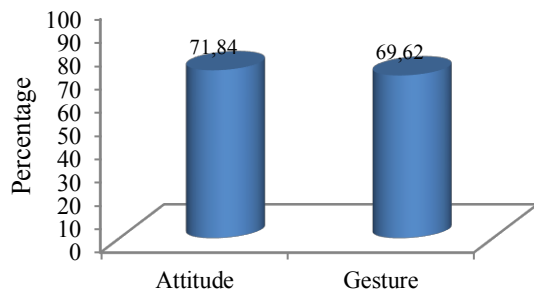


FIGURE 3. Communication Skills Indicators for Nonverbal Aspects

The last aspect of communication skills is writing. Writing is a written communication. Assessment of written communication in this study based on writings made by students about the health of the human body system. The skill of written communication is measured through the clarity of the main idea of writing, the flow of argument flowing smoothly and logically and written using the correct grammar. The value of communication skills for each indicator on the aspect of writing can be seen in Figure 4 below

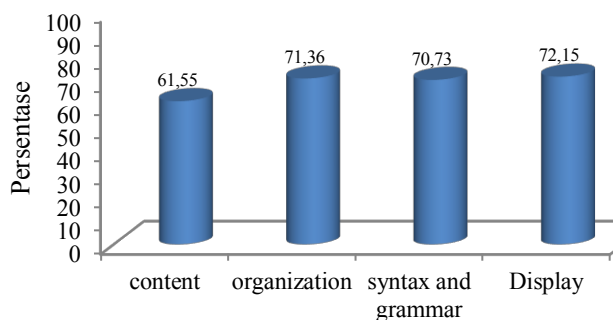


FIGURE 4. Indicators of Communication Skills for Writing Aspect

There are several indicators on the writing aspect of content, organization, syntax, and display. The content indicator on the writing aspect is lower than other indicators. The cause of the low indicator of the content because even though the students already have ideas for writing but the contents of the article has not been explained in detail and depth. Good written communication can be achieved when writing contains a deep topic coverage, clear main ideas and is supported by evidence. For written communication to be the right way of communication, one needs to filter content and data into easily understandable form.³²⁾

Presentation indicator on the writing aspect is higher than other indicators. Student written communication on this indicator is higher because the lecturer has set the writing format so that students make writing in accordance with the given format. In written communication, organization and correct use of grammar also need attention. The results of

this research indicate that there are still writings of students with interrelationships between paragraphs and unclear idea arrangements and incorrect use of spelling and punctuation. The most common mistakes found in student writings are wrong punctuation and grammatical errors that make it difficult to understand the meaning of the sentence. Written communication should be free of grammatical, spelling, and punctuation errors made as concise as possible. Like all forms of communication, written communication is also done with awareness of purpose and context (Staniforth, 2015). Written communication requires habituation and can take place effectively when the structure of the sentence is also well constructed so that it will help in expressing the idea more clearly. Written communication involves both the reader and the writer but they do not have to communicate at the same time.¹⁾

Communication skills of students of Biology Education Studies Program at Riau Islamic University, in general, are good enough. Among the four aspects of communication skills studied are speaking, listening, nonverbal and writing, then the speaking aspect tops the list followed by listening, nonverbal and writing aspects. Communication skills on students have an important role in interacting. The quality of students' social life is also determined in terms of how well they communicate. Therefore, communication skills need to be taught explicitly or taught into the learning process.³³⁾

IV. CONCLUSION

Students' Communication skills of Biology Education Program in Education Faculty of Riau Islamic University have quite a good category. Aspects of communication skills on students with the highest category are speaking (75.21) while the lowest category is writing (68.95). Therefore, further research recommendation is to conduct research with the aim to improve student communication skills. Improving communication skills requires a learning strategy that is able to facilitate students in performing communication skills.

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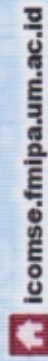
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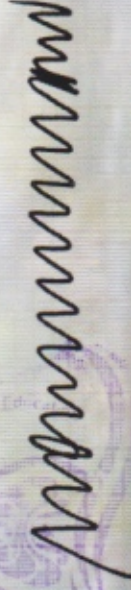
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