Identification of Students' Learning Difficulties During the Covid-19 Pandemic to Improvement of 21st Century Skills in College

Rahmi Septia Sari(✉), Lufri Lufri, Darmansyah Darmansyah, Yuni Ahda, Ali Amran, and Elizar Elizar

Program Graduate Education Sciences, Universitas Negeri Padang, Padang, Indonesia
rahmiseptiasari88@gmail.com

Abstract. Millions of students have been impacted, not least in Indonesia, by the temporary closure of educational institutions in an effort to stop the Covid-19 pandemic from spreading over the globe. The interruption of the learning process between students and lecturers as well as the cancellation of learning assessments have an effect on all students' psychological well-being and lower their overall academic standards and abilities. All components of education must shoulder this burden, especially the state, which must support the continuation of schools so that all parties involved in education can conduct distance learning. How could Indonesia prepare for the recovery of COVID 19 and deal with it to minimize further educational losses. In this instance, a study was carried out with the intention of identifying student learning challenges during the COVID-19 epidemic utilizing the observational approach and giving students questionnaires regarding the learning difficulties they encountered. This kind of research uses a quantitative method and is descriptive. In this study, descriptive statistical analysis was the method of data analysis. The findings of the analysis of student learning difficulties during the COVID-19 pandemic at Health Colleges revealed that 28.31% of respondents claimed that lecturers were to blame for these issues because they delivered unclear material that was difficult for students to understand, which made communication between students and lecturers less clear. Identification based on student data reveals results of up to 33,47 percent of students who are passively waiting for the teacher to explain such that learning becomes boring. 38 students, or 22% of the total, were the results of less effective learning methods and models employed in the delivery of the content. In this instance, it is clear that a variety of elements, including lecturers, students, and the techniques and learning models employed, contribute to students' difficulty in learning.

Keywords: Education · Identification · Learning Difficulties · Covid-19

1 Introduction

The goal of education is to educate the nation's life and develop Indonesians as a whole, i.e., people who believe in and are devoted to God Almighty, have noble character, have knowledge and skills, are in good physical and spiritual health, have a strong

M. Fadilah et al. (Eds.): IcoBioSE 2021, ABSR 32, pp. 155–161, 2023.
https://doi.org/10.2991/978-94-6463-166-1_23

and independent personality, and have a sense of social and national responsibility. (In realizing the ideals and goals of national education, one of the most important educational points of concern is education in virtuous character, which in our country in Indonesia is known as character education or value education.

The quality of a nation is greatly influenced by its educational system. The national education system must be able to guarantee an improvement in the quality and effectiveness of education management in order to meet the challenges of changing life in the global era, particularly in the current industrial 4.0 era. As a result, it is essential to implement educational reforms in a planned, directed, and long-lasting way.

Another goal of education is to maximize the contribution of students in order to raise standards of instruction, particularly in terms of the effectiveness of teaching methods and student achievement. This is consistent with the findings of [1] with regard to the factors of capacity to increase the quality of education, namely: (1) qualified lecturers, (2) motivated learners, (3) curricular materials, and (4) kind and quality of education. People – individuals who aid in learning. The consequences of students' learning in general biology are also influenced by a variety of internal and external influences [2]. Cognitive aptitudes, achievement drive, and learning quality are the three key variables that affect learning outcomes.

The only people who can effectively deliver a high-quality learning process that follows the structure of the scientific method are lecturers. Effective professors will encourage students to take ownership of their learning and foster a relaxed learning environment to ensure student achievement [4], suggests that educators should have the following characteristics: (a) understand how students learn well and help them develop their intellectual, social and personality abilities, differences in students so that they can provide appropriate services in learning, developing student motivation individually and in groups, (b) developing positive and self-motivated social interactions, and being able to speak clearly when communicating during the classroom learning process.

Based on the literature study that the researcher has done, the researcher concludes that there has been no or no research that has raised the research "Identification of student learning difficulties during the Covid 19 pandemic at Health Colleges." However, based on observations by the author toward several lecturers' courses General Biology has not been able to achieve the goal of the course General Biology caused to limitations of time lecturing. The method of learning still wearing discussion system which is monotonous, therefor students assume subject General Biology as subjects that are less important because not subject expertise for the department.

Based on the experience of researchers while teaching General Biology courses at Health Colleges, it shows that many factors cause the lack of enthusiasm of students in this The learning outcomes utilized in the general biology course, one of which uses the traditional learning paradigm, are affected by this as well. Applying learning models that can facilitate learning activities in accordance with anticipated outcomes is important to handle this scenario in the general biology learning process. The learning process in the classroom is anticipated to follow the pattern of the scientific method (scientific approach), including (1) learner-centered learning, (2) giving students opportunity to analyze and grasp problems, build problem-solving solutions, and freely and publicly submit ideas, (3) lecturer instruct and mentor students in problem-solving skills that

need critical and imaginative thinking. (4) Lecturers' initiatives to facilitate group study work and cooperation, teach students how to communicate using diagrams, symbols, graphs, and other visual aids, Results 1 through 5 To find diverse concepts and show the outcomes of solving problems during the learning process, work is constantly presented in front of the class.

Based on these problems it is necessary to solve the problem through the development of a method of learning that is expected to create an effective learning, creative, and efficient way to improve students' understanding of learning during the pandemic Covid 19 College of Health. The best method for advancing knowledge and abilities is through the educational process, which is supported by public policy. Additionally, a lot of kids think that learning is a lot of fun since they get to interact. The formal educational setting has the potential to improve students' social skills and understanding of social status. The relationship between teachers and students inside educational institutions as a whole helps to increase their mutual respect, competence, and kinship.

But as a result of the Covid-19 interruption, official learning activities have now abruptly ended. How much of an effect does it have, for instance, on how students learn in a classroom setting? There is a ton of data, particularly for Indonesia, indicating education has a significant impact on economic growth and productivity. According to a Carlsson article, teens in Sweden have a distinct amount of days to study for significant tests. Conditional randomness makes a difference, which the author attempts to assume is the same in Indonesia. Teenagers in Sweden extend their school year by 10 days, which increases their performance on a knowledge test. Similar to this, going to school will improve student's memory, according to Jonsson. In this case the researcher will identify the problems that occur that result in learning difficulties for students at the Health College.

The world of education must adapt to technological changes in information, which have led to new innovations in the establishment of education, such as the development of innovative instructional media and techniques of knowledge transmission from teacher to student. Consequently, it is necessary for both teachers and pupils to be able to use computers and the internet. In the period of the fourth industrial revolution, students must also be able to use information technology. These days, everything is digital and internet-based, and access to information is limitless [6].

2 Methods

This kind of research uses a quantitative approach while being descriptive. Students from Padang's Apikes Iris Medical Record Study Program who were enrolled in the even semester of 2020–2021 made up the research population. The data was taken from the average value of students, interviews with lecturers of General Biology Course, and the distribution of Questionnaires to Students who have attended General Biology Lectures. There were 20 samples in this study, and there were 65 participants overall. Simple random sampling is the technique used for sampling. In this investigation, 23 different statements were employed. Descriptive statistical analysis is the method of data analysis employed in this study.

3 Results and discussion

Based on the results of the questionnaire on the identification of student learning issues, values similar to those in Fig. 1 below can be obtained for the results of the identification of student learning challenges during the COVID-19 pandemic at Health Colleges:

From Fig. 1, it can be seen that the influencing factors based on the lecturer obtained results as much as 28.31%, with statements given by students that they found it difficult to understand the learning material because the lecturer's explanation was not clear and the lecturer explained the material. too fast so that students become bored attending lectures. Furthermore, students are also an important indicator in identifying learning difficulties with the acquisition of filling out questionnaires by students as much as 33.47%, in this case students are only listeners during lectures, students tend to be passive and not actively engaged in their learning since they simply rely on the information provided by the teacher. lectures, then in terms of the methods and learning models used by lecturers during lectures according to students, they are still conventional and not interesting for students to motivate them to learn, this statement gets 38.22% results. Students find it difficult to learn general biology because of several factors that have been expressed in the graph of student learning difficulties, so in this case it is necessary to make changes in the learning process so that learning becomes more meaningful and learning objectives are achieved with good results.

Findings from the final exam's identification of learning challenges According to Table 1 below, students can see their results for the Final Examination for the Semester General Biology Study Program:

According to Table 1 above, student final semester examination scores for each teaching year are still below the mastery standard (KKM) in Apikes Iris Padang. In this case, it is evident that the Medical Record Study Program students still find understanding general biology challenging and lack interest in participating in the study.. In general, we can know that this course is a subject that belongs to the science family which contains concepts, facts, principles and processes that occur in nature, this is in accordance with Lufri's statement (2007:17) that "biological material is basically in the form of facts,

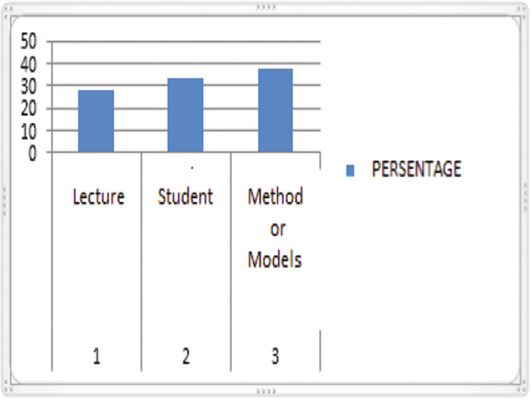

Fig. 1. Student learning difficulties identification

Table 1. The average value of the general biology final semester exam

No	School year	Number of Students	Average value
1	2019/2020	65	67.55
2	2020/2021	65	66, 84

concepts, principles and theories". Learning about biology gives students the opportunity to gain knowledge about their own lives, the environment, and potential future applications that will directly impact their ability to deal with health issues.. In general biology learning, health students are also trained to develop process skills in the form of attitudes and values. These process skills include curiosity, honesty, patience, openness, critical, tenacious, diligent, careful, disciplined and care about the environment and cooperate with others.

Facts in the field based on the results of observations made by researchers have not been in accordance with the expected expectations. In order to achieve this general biology learning objective, lecturers as teaching staff actually have an important role in improving student learning outcomes, lecturers are required to be able to motivate students to learn actively, innovatively, creatively, effective and fun. The chance for students to actively participate in the learning process, both physically and mentally, should be provided. Besides, it is also necessary to create conditions that can stimulate student interest in participating in learning. It aims to increase student learning motivation, because this motivation also affects learning activities, as expressed by Winkel (1996: 150) that learning motivation is the entire psychic driving force in a person that can lead to learning activities, the higher learning motivation someone, the better the activity to achieve goals or good learning outcomes. With the current pandemic conditions, it is increasingly difficult for lecturers and students to carry out the learning process.

Based on findings from observations and discussions with the general biology professor, Mrs. Nurhasanah Nasution, M.Si, it was revealed that the students were less interested and motivated in learning. This is because most of the learning is still Teacher Centered Learning. Students tend to accept what is given by the teacher, another factor that causes low learning desire is that students do not understand the material due to several factors. Factor impacting, among others, academics, students, and the accessibility of learning tools, conventional learning paradigms, and learning techniques. In this case, students do not have the desire to learn and understand the material. Students only rely on the material delivered by the lecturer, students tend to be passive, communication that occurs in one direction. This is indicated by the large number of students who come in and out during the teaching and learning process, cheat while doing assignments, do not want to actively participate in expressing opinions so it can be seen that many student scores do not reach the KKM as shown in Table 1.

4 Conclusions

The findings of the research indicate that a number of elements, including lecturers, students, and the media, as well as an inappropriate learning model, contribute to the learning challenges that students experience. This can be seen from the outcomes of interviews with lecturers who learned that students do not comprehend the material explained because the lecturers' teaching strategies are still traditional and insufficient for the current stage of knowledge development, where students are expected to actively participate in their education in order to develop their critical thinking abilities, creativity, collaboration, and technological mastery. The learning that has been done hasn't exactly made this evident. Therefore, in order to adequately attain the required learning outcomes, efforts must be made to strengthen 21st century abilities.

References

1. J.V.D. Akker, K. Gravemeijer, S. McKenney, N. Nieveen, Educational design research, New York: Routledge, 2006.
2. H. Alberida, Pengembangan Model Pembelajaran Problem Solving untuk Meningkatkan Keterampilan abad 21 Siswa pada Pembelajaran IPA SMP, Disertasi, Padang, Universitas Negeri Padang, Tidak dipublikasikan. 2019.
3. H.A. Alismail, P. McGuire, 21st Century Standards and Curriculum: Current Research and Practice, Journal of Education and Practice, Vol.6, No.6, 2015, pp. 150-154.
4. K. Ananiadou, M. Claro, 21st Century Skills and Competences for New Millennium Learners in OECD Countries, OECD Education Working Papers, No. 41. Paris, OECD Publishing, 2019.
5. L. Argote, Organizational Learning: Creating, Retaining and Transferring of Knowledge, Springer Science, and New York, 2013.
6. S. Arikunto, Dasar-Dasar Evaluasi Pendidikan. Jakarta, Bumi Aksara, 2013.
7. D. Ary, L.C. Jacobs, C. Sorensen, Introduction to Research in Education; Eighth Edition, United States, Wadsworth Cengage Learning, 2010.
8. C. D. Aslanides, V. Kalfa, S. Athanasiadou, Z. Gianelos, V. Karapatsias, Advantages, Disadvantages and the Viability of Project-Based Learning Integration in Engineering Studies Curriculum: The Greek Case, 44 th SEFI Conference, 12–15 September, Tampere, Finland. 2016.
9. G. Awada, H. Diab, Lebanon's 2011 ICT Education Reform Strategy and Action Plan: Curriculum Success or Abeyance, Cogent Education, 2016.
10. S. Azwar, Penyusunan Skala Psikologi edisi 2, Yogyakarta, Pustaka Pelajar, 2012.
11. S. Barab, K. Squire, Design-based research: Putting a stake in the ground, Journal of the Learning Sciences, 13(1), 2004, pp. 1–14.
12. MC. Bell, P.M. Simone, L.C. Whitfield, Evaluation of "Out-of-the- Box" Textbook Technology Supplements on Student Learning, Scholarship of Teaching and Learning in Psychology, Vol. 2, No. 2, 2016, pp. 112–124.
13. S. Bell, Project-Based Learning for the 21st Century: Skills for the Future. The Clearing House, 83:2, 39–43, DOI: https://doi.org/10.1080/00098650903505415.
14. I. Béres, M. Kis, Flipped Classroom Method Combined with Project Based Group Work. Springer International Publishing AG M. E. Auer et al. (eds.), Teaching and Learning in a Digital World, Advances in Intelligent Systems and Computing 715, 2018.

15. E. Care, H. Kim, Assesment of Twenty-First Century Skills: The Issue of Authenticity, Spinger International Publishing Ag, 2018.
16. R. Chiong, J. Jovanovic, Collaborative Learning in Online Study Groups: An Evolutionary Game Theory Perspective, Journal of Information Technology Education, Vol. 11, 2012, 81-101.
17. D. Rumahlatu, E.K. Huliselan, J. Takaria, Analysis of the Readlines and implementation of 2013 Curriculum in the west part of Seram District, Maluku Province, Indonesia. International Journal of Environmental & Science Education, Vol. 11, No. 12, 2016, pp. 5662-5675.
18. O. Shatunova, E.S. Merzon, M. Milyausa, S. Shabalin, Training of future technology teachers: management tools and challenges in current educational process, EURASIA Journal of Mathematics, Science and Technology Education, 14(6), 2018, 2343-235.
19. M.T. Soh, N.M. Arsad, K. Osman, The relationship of 21st century skills on student attitude and perception towards physics, International conference on learner diversity, Procedia social and behavioral sciences, 7(C) 2010, pp. 546–554. DOI: 10.1016/j. Sbspro.2010.10.073. 2010
20. J.L Bishop, M.A. Verleger, The flipped classroom: a survey of the research. In: ASEE National Conference Proceedings, Atlanta, GA, vol. 30, no. 9, 2013.
21. P.C. Blumenfeld, E. Soloway, R.W. Marx, J.S. Krajcik, M. Guzdial, A. Palincsar, Motivating PBL: Sustaining the doing, supporting the learning. Educational Psychologist, 26 (3&4), 1991, pp. 369-398.
22. A. Boisandi, Pengembangan modul eksperimen fisika material solar cell berbasis TPACK. Edukasi: Jurnal Pendidikan, 15(1), 2017, pp. 1–10.
23. E. Brewe, L. Kramer, G. O'Brein, Modeling instruction: positive attitudinal shifts in introductory physics measures with class, Physics Review Special Topics Physics Educational Resource, 5 (1): 013102, 2009.
24. J.S. Bruner, The act of discovery, Harvard Educational Review, 31(1), 1961, pp. 21-32.
25. E. Burman, S. Miles, Deconstructing supplementary education: from the pedagogy of the supplement to the unsettling of the mainstream, Educational Review, 2018, pp. 1–20. DOI: https://doi.org/10.1080/00131911.2018.1480475
26. W. Byers, Promoting active learning through small group laboratory classes, University Chemistry Education, 6, 2002, pp. 28–34.
27. E. Care, H. Kim, Assessment of Twenty-First Century Skills: The Issue of Authenticity. Springer International Publishing AG 2018 E. Care et al. (eds.), Assessment and Teaching of 21st Century Skills, Educational Assessment in an Information Age, 2018, pp. 21–39. DOI: https://doi.org/10.1007/978-3-319-65368-62