



Student Needs Analysis in SMA Negeri 2 Sintang

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Abstract. Since the Covid-19 pandemic, students have carried out learning using the distance learning method. This distance learning has been implemented since the pandemic and forced students to get used to learning in this method. After the pandemic subsided, learning was again carried out offline. In response to changing learning, we are trying to explore what kind of learning students want in physics lessons after the pandemic is over. The purpose of analyzing student needs is to reveal information related to the gap between what students get and what students are expected to get. This research is descriptive research with a qualitative approach. The subjects of this study were 40 students of class XI at SMA Negeri 2 Sintang, which were determined by purposive sampling. Data collection was carried out using an instrument in the form of a multiple-choice questionnaire with open entries. The results of the student need analysis are described in the following article. It is hoped that this research can be used as a reference in selecting learning strategies in the post-pandemic era.

Keywords: Student needs analysis · Physics Education · Learning after the pandemic · Learning strategies

1 Introduction

The educational system collapsed during the lockdown of Covid-19 across the world. Lockdown is applied as the state of the emergency protocol to restrict people from leaving their place in mass quarantines and staying at home. In many places, as a consequence of the Covid-19 pandemic, many schools throughout the world were closed. The students had to attend the class from their house since then. Every learning program was held by using online methods. Based on research [1], online learning produced a series of projections of Covid-19 on learning loss. Under the projections, students are expected to have 63 to 68% learning gains in reading and 37 to 50% learning gains in mathematics. Furthermore, this study proposed strategies to recover from the covid slide.

During the Covid-19 pandemic, there has been an increasing move towards teaching online because of the shutting down of schools, colleges, and universities. Therefore, that was the time to gravely rethink, revamp and redesign the education system in the much-demanding need of the unprecedented situation [2]. Based on [2], most high school teachers believe that online learning has advantages during the pandemic. Furthermore,

schools need technical readiness in the online learning process and training programs for teachers and students. Technical readiness such as well basic knowledge, computer use skills, communication skills, goal conveying skills, a sense of connection between teacher and student, and other skills needed in the online learning process.

Within four months after learning is carried out online, [3] find that both faculty and students feel that online learning should be implemented during a pandemic. Teachers and students indicated that the challenge lies in the implementation of online learning. For students, several aspects that affect effectiveness of online learning are those who have difficulties in audio learning, lack of motivation, and lack of interaction in virtual learning.

Teachers and students have to adapt and change their learning activities in virtual learning. The learning activities were designed based on the digital competence of teachers and students. In particular, teachers' digital competence played an important role in adapting to online teaching during school closures since covid-19 [4]. In order to do that, teachers have to adapt and intensify communication with the students to maintain students learning development.

Students must also adapt to modern learning so that learning objectives can be achieved completely. In modern learning, the teacher only acts as a facilitator. Thus, students must have good independent learning skills. Independent learning is learning independently, not depending on others, students are required to have their own activeness and initiative in learning [5].

However, many positive things arise from the implementation of technology, pedagogy, and content in a dynamic learning program. The technology, pedagogy, and content knowledge model area of content is an emphasis in the next stage of the expansion [6]. The last goal is to find an efficient way in teaching and learning activities.

After the pandemic subsides, are the learning activities will be the same as before the pandemic or it will be the same as learning activities during the pandemic? To answer the questions, we conducted a student need analysis to find out what kind of learning is suitable for typical students after the pandemic. This research takes the role of providing an overview of the expected learning by the students after the pandemic. Furthermore, this article could be used as a preliminary for further research.

2 Method

This research is a descriptive qualitative study. The respondent was 11-grade students in SMA Negeri 2 Sintang. Data was collected directly from the respondent using a questionnaire test. The sample was chosen by using a purposive sampling technique. Purposive sampling was used on 11-grade students in high school who experienced online learning. Purposive sampling is used in order to find subjects on specific considerations with the goals and requirements of the study [7].

The questionnaire consists of 22 questions with yes-no questions with reasons. The questions aim to reveal the following five indicators: type of teacher assessment, student motivation in learning, students' activities in learning, the way students do the assignment, and what type of assignments students need.

3 Result and Discussion

The results of this research can be used by teachers as a consideration in carrying out effective teaching and learning activities according to student needs.

Data from respondents shows that 95% of students admit that teachers at school carry out assignments in written form. This assessment is carried out in the form of practice questions, assignments, tests, and written homework. The form of assessment given by the teacher also varies: corrected with the teacher and students, corrected personally by the teacher.

At point 2, 90% of students agree that the physics teacher has criteria for selecting physics material when conducting the assessment. Students assume that the teacher has made an assessment according to the learning carried out. However, there are students who think that the teacher does not pick and choose the material when the assessment is carried out.

At point 3, 93% of students agree that the teacher always makes an assessment at the end of each learning chapter. Students understand that the assessment is carried out to determine student understanding at the end of each chapter. This assessment can be in the form of individual or group assessments. Even so, the teacher does not always carry out an assessment at the end of the chapter, an assessment can be carried out when he has finished explaining the material.

At point 4, as many as 95% of students admit that the teacher often varies the questions given during assessment. Some students think that this variation aims to help deepen students' understanding. Variations in the types of questions, for example, are using similes or similar terms so that students feel the variations in questions in certain concepts. Variations of questions are also given in the form of problem difficulty levels: easy, medium, and difficult. However, there were students who thought that the questions became more difficult when the questions were varied.

At point 5, 90% of students felt that the teacher used an assessment of learning outcomes that made students actively participate and be independent in learning physics. One type of activity that can bring up student activity is the interview. Students admit that the teacher always motivates students so that students are braver and can complete assignments independently. In addition, there were students who claimed that they felt understood better when asked to answer questions in front of the class. This type of assessment can become a competition for students to understand the subject being studied.

At point 6, 73% of students pay attention to the material they have learned and studied it again after school. Some students admit that they had understood the material at school, but forget when they return home. Several students said that they understood but no longer study the material at home. Some others admitted that they did not study the material anymore when they got home.

At point 7, 63% of students always set a physics target score in each learning chapter. Several students set a target score in order to increase their enthusiasm and motivation in physics. However, some students did not set any targets in physics lessons because they want to learn in a relaxed manner and are not forced to get a certain grade.

At point 8, 88% of students agree that the physics teacher always guides them to arrange material learning objectives in class. Some students understand that learning

objectives can have a positive impact on student understanding. At least, the teacher always gives them the purpose of each lesson chapter so that learning is well-directed (Table 1).

Table 1. Student needs

No	Students answer	Percentage
1	Physics teachers always do assessment assignments which are only in the form of written tests	95%
2	Physics teachers have criteria for selecting physics material when assessing learning outcomes	90%
3	Physics teachers always make an assessment at the end of each learning chapter	93%
4	Physics teachers often vary the types of questions given	95%
5	Physics teachers have used assessments of learning outcomes to make you become an active participant and become more independent in learning physics	90%
6	Students understand the material they have learned and study it again after going home from school	73%
7	Students always determine the target value of physics in each subject matter	63%
8	Physics teachers always direct students to plan material learning goals in class	88%
9	Students study physics on their own accord	85%
10	Students just keep quiet while studying, even though they don't understand the material explained by the physics teacher	40%
11	Students search for materials / subject matter before the physics teacher gives assignments	30%
12	Students listen to the physics teacher's explanation and take notes on physics subject matter	100%
13	Physics teachers always provide motivation to learn when learning physics	93%
14	Students set their study hours every day for at least 1 h outside of school	38%
15	Students study only when there is homework	48%
16	Students do their physics assignments given by the physics teacher	68%
17	To try to understand the material, students try to do physics exercises	80%
18	After the teacher gives physics assignments, students form study groups to work on assignments together	60%
19	When working on physics assignments, students refer to books or other media that could support them	93%
20	Students make a question if it is not clear about the material being explained	73%

(continued)

Table 1. (continued)

No	Students answer	Percentage
21	Assessment of learning outcomes that can develop students thinking skills by creating effective learning strategies	100%
22	Summative assessment is developed through learning that goes through the phases of project determination, project design, project implementation, evaluation of project processes and results, preparation of reports and presentations, and project completion through monitoring by the teacher	88%

At point 9, 85% of students admit that they learn physics on their own accord. Several students admit that physics is difficult, but they have to learn it on their own for numerous reasons: students are interested in physics in several chapters/concepts, and several students are forced to learn it because they are studying in a science class. This shows that students realize that they have to learn physics because it is important. However, they did not learn it on the basis of pleasure in studying physics. This should be an indication that physics has still become a frightening subject for students in senior high school. Therefore, developing a physics learning model that can enhance students' interest and motivation in learning physics is necessary.

At point 10, 40% of students admitted that they were passive during learning activities in class, even though they did not understand what the teacher was explaining. Some students stated that they were embarrassed to ask questions because they did not understand the material. In addition, students do not understand what they will ask their teacher. This can be an indication that in learning the teacher should be able to create a pleasant atmosphere so that students can more easily and comfortably learn physics in class.

At point 11, 30% of students learn the materials/subject before the physics teacher gives assignments. This illustrates the low level of student initiative in learning and searching for learning materials. Some students admit that even though they look for the concept first, they cannot master the concept. This shows that students are very dependent on the physics teacher. In this case, the selection of student-oriented learning models, for example, project-based learning models can be chosen, so that students can be trained to be able to study independently.

At point 12, all of the students always listen to the teacher's explanation and take notes on the lesson material. This is done by students so that they have notes to study for exams. The physics teacher also always gives time for students to take notes on the material properly.

At point 13, 93% of students stated that the physics teacher always provided motivation to learn when physics lessons were carried out. This is done so that students have enthusiasm while learning. The lack of student activity in the classroom was overcome by the physics teacher who always provided motivation when learning took place. Although this places an additional burden on the teacher, this is what must be done to accommodate the current situation. This is in line with [8] which finds a significant impact of teacher self-efficacy and motivation on academic achievement in science education.

At point 14, only 38% of students set their own study hours every day for at least 1 h to study physics. Some students study unplanned, according to their needs. Some of them claimed that they did not have time to study every day because of their busy daily activities. However, there are some students who do not arrange their schedules because they do not understand what to study independently.

At point 15, 48% of students admit that they study only when there is homework. Students admit to being confused about learning material if there is no direction in learning, for example through assignments or homework. Others always read books when preparing books for school the next day. This illustrates that students' initiative in learning needs is still low. This can be overcome by delivering motivation to students when learning in class.

At point 16, 68% of students did the physics assignments themselves given by the physics teacher. Some of these students do their work by looking for learning resources/references on the internet. On the positive side, this really helps students in learning. However, this has a negative effect on the students because of the availability of existing answer keys for the questions in the reference book. This can be overcome by physics teachers by providing fresh questions and did not take questions directly from the book.

At point 17, in order to understand the concept, 80% of students do exercises in solving problems. Students do some exercises using Google, YouTube, or books. Some students work on questions with the aim of honing skills and increasing their understanding of the material. Students claimed to be able to better understand the material through the method of working on physics questions.

At point 18, 60% of students form study groups to work on assignments together. This is done in discussion in finding the appropriate formula for solving the questions. Even so, some students prefer to work on assignments independently.

At point 19, 93% of students are looking for books or other media that can support physics assignments. If students do not find answers through colleagues, students work on assignments using book references and other media.

At point 20, 73% of students always ask if it is unclear about the material explained by the physics teacher. However, some students did not ask a question because they did not know what is the questions. Others did not ask because they did not want to slow down the class pace.

At point 21, all students admit that they need an assessment of learning outcomes that can develop students' thinking skills by creating effective learning strategies. This is necessary so that students understand the extent of the abilities they have acquired. Besides being able to measure students' abilities, this can also become a motivation for students.

At point 22, 88% of students agree that summative assessment is developed through learning that goes through the phases of project determination, project design, project implementation, evaluation of project processes and results, preparation of reports and presentations, and project completion through teacher monitoring. Students agreed with this suggestion, but some felt that project-based learning in each material would make it difficult for them. Some students also do not like group assignments because they will depend on each individual in the group. Some students also think that project-based assessments make students feel burdened.

4 Conclusions

Based on the results and discussion, it can be concluded the following points. The first indicator is about teacher assessment/assignment. On this indicator, most students want assessment questions that vary, both in the type of questions, as well as the way to discuss them. Students agree that assignments/assessments are made according to the type of concept. Students want an assessment to be made at the end of each chapter, so they don't quickly forget the material they have learned. This also makes it easier for students to study, because the material tested is less than the final exam. Students agree if they are given questions with varying levels of difficulty. Students want a type of assessment of learning outcomes that can make them more active and motivated in learning. The type of assessment can be adjusted to the types of subject matter.

The second indicator is about student motivation/objectives in learning physics. After the assessment/learning was carried out, most students understood but did not study it again after returning home. Although most students set a target value for physics in each chapter, some students did not target a specific value because they wanted to study in a relaxed manner. Students consider it necessary to always be directed by the teacher by providing direction for learning goals. This shows that students still need to practice to have independent learning skills. In the end, most students admit that they learn based on their own desires, even though they consider learning to be a burden. This resulted in many students being passive in class.

The third indicator is student activity in learning. Only a small proportion of student study before class. This is what causes students to be inactive in class because they do not have a basic knowledge. Students listen a lot and take notes on what the teacher conveyed. The weakness of student activity in the classroom was overcome by the physics teacher who always provided motivation when learning took place. Most students do not have specific physics study time at home. Nearly half of the students admit that they only study when there is an assignment or homework.

The fourth indicator is about how students do the assignments. Students work on the assignments themselves. Some of them work on problems to increase their understanding. Some students also form study groups when doing the assignments given. Students use books, media, or other references when working on assignments. However, some students did not want to ask the teacher even though the material provided was not clear.

The last indicator is how the student needs in assessment. Students need an assessment of learning outcomes that can develop students thinking skills through effective learning strategies. A summative assessment (of learning outcomes) is needed to evaluate students' projects in project-based learning models.

References

1. Kuhfeld, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E., & Liu, J. (2020). Projecting the Potential Impact of COVID-19 School Closures on Academic Achievement, *Educational Researcher*, 49(8), 549–565. DOI: <https://doi.org/10.3102/0013189X20965918>
2. Mishra, L., Gupta, T., Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic, *International Journal of Educational Research Open*, 1, DOI: <https://doi.org/10.1016/j.ijedro.2020.100012>

3. Almahasees, Z., Mohsen, K., & Amin, M. O. (2021). Faculty's and Students' Perceptions of Online Learning During COVID-19. *Frontiers in Education*. DOI: <https://doi.org/10.3389/feduc.2021.638470>
4. Johannes König, Daniela J. Jäger-Biela & Nina Glutsch (2020) Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany, *European Journal of Teacher Education*, 43:4, 608–622, DOI: <https://doi.org/10.1080/02619768.2020.1809650>
5. Ahmadi, Abu. 1990. *Psikologi Sosial*. Surabaya: Bina Ilmu.
6. Hargis, J., Cavanaugh, C., Kamali, T. et al., A Federal Higher Education iPad Mobile Learning Initiative: Triangulation of Data to Determine Early Effectiveness. *Innov High Educ* 39, 45–57 (2014). DOI: <https://doi.org/10.1007/s10755-013-9259-y>
7. I. Etikan, M. A. S. Musa, S. R. Alkassim, Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1, 2016. DOI: <https://doi.org/10.11648/j.ajtas.20160501.11>.
8. Bal-Taştan S, Davoudi SMM, Masalimova AR, et al., The Impacts of Teacher's Efficacy and Motivation on Student's Academic Achievement in Science Education among Secondary and High School Students, *EURASIA J Math Sci Tech Ed.*, 2018, 14(6), 2353–2366. DOI: <https://doi.org/10.29333/ejmste/89579>

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