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Low Competency Achievement in the Covid-19 Pandemic Era: Analysis of Application of Biology Learning Model

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ABSTRAK

Siswa kurang aktif dalam pembelajaran biologi online dikarenakan gangguan koneksi internet, sehingga hasil belajar siswa lebih rendah dibandingkan pembelajaran tatap muka. Penelitian ini bertujuan untuk mengeksplorasi dan menganalisis model pembelajaran yang digunakan guru biologi dalam pembelajaran online, ketercapaian kompetensi siswa, dan faktor pendukung dan penghambat yang mempengaruhi pencapaian kompetensi siswa. Penelitian ini merupakan penelitian deskriptif dengan menggunakan metode survei. Sampel dalam penelitian ini menggunakan sampel aksidental yaitu guru biologi kelas XI. Teknik analisis data menggunakan teknik deskriptif dengan mencari modus jawaban yang diberikan oleh responden. Hasil penelitian menunjukkan bahwa model pembelajaran online biologi yang digunakan guru adalah model PBL dan guided inquiry learning, pencapaian kompetensi siswa kelas XI SMA selama pembelajaran online masih rendah, dan faktor pendukung pencapaian kompetensi siswa adalah model pembelajaran sering digunakan, sedangkan faktor penghambat adalah rendahnya motivasi siswa dan tidak aktif dalam belajar. Penerapan model pembelajaran lebih dioptimalkan dan mendorong siswa untuk lebih aktif saat kegiatan pembelajaran berlangsung. Guru harus berperan dalam meningkatkan motivasi belajar siswa sehingga dapat menumbuhkan semangat siswa.

ABSTRACT

Students are less active in online biology learning due to internet connection disturbances, so student learning outcomes are lower than face-to-face learning. This study aims to explore and analyze the learning model used by biology teachers in online learning, student competency achievement, and supporting and inhibiting factors that influence student competency achievement. This research is a descriptive research using survey method. The sample in this study used an accidental sample, namely a class XI biology teacher. The data analysis technique uses descriptive techniques by looking for the mode of answers given by respondents. The results showed that the biology online learning model used by the teacher was the PBL and guided inquiry learning models. The competency achievement of class XI high school students during online learning was still low, and the supporting factors for achieving student competency were the learning models often used, while the inhibiting factor was low student motivation. and not active in learning. The application of learning models is more optimized and encourages students to be more active when learning activities take place. The teacher must play a role in increasing student learning motivation so that it can foster student enthusiasm.

1. INTRODUCTION

Learning is an interactive activity between students, teachers, and learning resources. Learning aims to develop students' potential to become productive, creative, and innovative individuals and contribute to society and the state. Learning activities in class should be interactive and fun (Arga et al., 2022; Kusuma et al., 2021). An active and fun learning process can increase students' learning motivation so that learning objectives are achieved to the maximum (Astuti, 2021; Lase., 2019). The success of learning can not be separated from the role of a teacher. Teachers play a role in planning, implementing, assessing, and evaluating knowledge (Daryono et al., 2020; Kang, 2022; Kim, 2020). Teachers as professionals must have four essential competencies. The fundamental competencies are pedagogic, personality, social, and professional. Scholastic competence is critical for teachers in planning lessons, especially in choosing and

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adapting learning models to the material to be taught (Bøe, M., Heikka et al., 2022; Loey et al., 2021; Marja, S. L., & Suvi, 2021). The learning model chosen must pay attention to the material's characteristics and the learning model's stages (Heru et al., 2021; Setyadi et al., 2021).

The learning model is a systematic procedure used as a guide for carrying out learning activities. The learning model contains steps, activity arrangements, and types of assessment. The recommended learning model in implementing the 2013 Curriculum is a learning model that can shape scientific and social behavior and develop a sense of curiosity (Agung Ratih Rosmilasari, D. M., & Adoe, 2021; Munastiwi, 2021; Saifurrahman et al., 2021). The learning models in question include discovery learning models (Inquiry/Discovery Learning), problem-based learning models (Problem Based Learning/PBL), and project-based learning models (Project-Based Learning/PjBL). The PBL model and the PjBL model are learning models that utilize problem issues in their implementation procedures The selected problems can be in the form of real-life situations or issues related to the surrounding environment (Effendi & Hendriyani, 2020; Primayanti et al., 2019). Meanwhile, the inquiry and discovery learning models' direct students to acquire their knowledge through discovery or investigation activities and hypothesis testing. Students will find the knowledge gained through an invention more memorable and easier to remember. This knowledge will also become long-term or lifelong learning (Rosantono et al., 2021; Setyadi et al., 2021).

Every activity in the PBL, PjBL, inquiry, and discovery learning models fully involves students' activeness. This activity will arouse curiosity and guide imagination and creativity (Suryawati et al., 2020; Van Hooijdonk et al., 2022). Students actively seek new information to find facts and analyze correlations and novelty of topics studied with the teacher (Aftoni et al., 2021; Hassan & Mohammed, 2020). This follows the characteristics of biology lessons emphasizing discoveries and investigations (Dorfner et al., 2019; Dragomirescu-Gaina, 2021). Biology lessons are part of science that studies life, the surrounding environment, and the phenomena that occur in them. Biology lessons focus on observations to find facts and concepts and experiments to prove a hypothesis (Hujjatusnaini et al., 2022; Juanda et al., 2021). Therefore, biology lessons are suitable when taught using discovery and investigation-based learning models such as inquiry and problem-based learning.

Based on the results of interviews with biology teachers at SMA Kota Yogyakarta, it is known that so far, teachers often use inquiry, discovery, and problem-based learning models for every biology subject. The teacher assessed that these models could increase students' motivation and learning outcomes. Based on previous study, these learning models are also able to increase student activities such as finding facts and concepts, being creative and communicative, and increasing collaboration between students (Clements & Redding, 2020). Based on the results of interviews with biology teachers, the application of the model during face-to-face learning is carried out utilizing group discussions, practicums, and observations, as well as making group projects. Students are very enthusiastic when doing practical activities and completing biology projects. Students actively discuss the planned activities to be carried out and what products will be made in the biology project. The interest and activeness of students in the learning process can improve students' understanding and learning outcomes of biology. This is indicated by the achievement of competence in several biological subjects already above the Minimum Completeness Criteria (KKM).

However, the current Covid-19 pandemic has caused the implementation of biology learning in the form of group and face-to-face activities for the time being. Following SE No. 36962/MPK.A/HK/2020 concerning Online Learning and Working from Home that face-to-face school learning is replaced with online learning (Onyema et al., 2020; Winarni et al., 2021). Online learning is carried out online between teachers and students through the help of internet networks and applications such as Google Classroom, WhatsApp, Google Meet, and Zoom Meeting, as well as through social media such as Facebook and Instagram (Fatimah & Santiana, 2017; Singh & Thurman, 2019). Online biology learning requires every teacher and student to access the internet properly so that learning activities can run smoothly. However, internet access between the city area and areas far from the city sometimes experiences differences due to the different signal coverage and provider networks in each region. In addition, implementing online learning also requires teacher creativity in innovating the application of learning models. The learning model that will be used must be adapted to the conditions and circumstances of the students so that the achievement of competence can be achieved to the maximum.

The success or failure of the application of the online learning model cannot be separated from several influencing factors, namely teachers, students, and the subject of biology itself. Teachers must understand and master the syntax of learning models to innovate models according to online conditions. Previous study state that students' learning motivation while online also plays a role in learning success (Firman & Rahayu, 2020). Previous study state that students stay active and focused during online learning or become passive and bored during education (Paidi, Antony et al., 2020; Pamungkas et al., 2017). The biology subject can also have an effect because many biology topics are complex and require direct

observation and fact-finding. Therefore, it is essential to analyze what factors influence the application of the online biology learning model so that different solutions to the existing problems can be found.

Based on the results of interviews with biology teachers at SMAN Yogyakarta City and Gunungkidul Regency, online biology learning activities are different from face-to-face learning activities. Student learning outcomes are felt to be lower than usual for face-to-face learning. Students are sometimes less active during education caused of signal interference or internet connection. In some schools in areas far from the city center, the internet network is less stable, but there are also those with good internet networks even though they are far from the city center. Therefore, researchers are interested in apply the online biology learning model in regional high schools near the city center and senior high schools far from the city center. The aims of this study is to explore and analyze the learning model used by biology teachers in online learning, student competency achievement, and supporting and inhibiting factors that influence student competency achievement.

2. METHOD

This research is descriptive research with a survey method. The data from the investigation will be described objectively regarding the implementation of biology learning models for class XI SMA to support the achievement of student competencies during online learning. This research was conducted in several senior high schools in Yogyakarta City and Gunungkidul Regency. The population in this study were all biology teachers of class XI SMA Negeri in Yogyakarta. The sample of this research is random: six biology teachers of class XI SMAN Yogyakarta City and six teachers of SMAN Gunungkidul Regency, which currently exist. The independent variable of this research is the implementation of the biology learning model, while the dependent variable is the achievement of the competence of class XI students.

The data collection technique in this study used a test technique in the form of a questionnaire and a non-test in the form of an interview. The data collection instrument used a questionnaire containing a set of written questions to the biology teacher as a respondent. In addition, through a short interview as a form of confirmation and continuation of the questionnaire that has been given. The instrument's validity in this study uses construct validity by describing the variables in their aspects and testing using expert judgment. The data analysis technique uses descriptive analysis techniques, and then generalizations are made. The data presented in this study is in the form of mode data which describes the similarity of opinions between respondents.

3. RESULT AND DISCUSSION

Result

This research was conducted at 6 SMAN in Yogyakarta City and 6 SMAN in Gunungkidul Regency. The research subjects were 12 teachers of class XI biology. This research was conducted to determine the learning model most applied by biology teachers during online learning and how to achieve competence in each subject. In addition, this research is also to find out what factors affect the achievement of student competence during online learning. This quantitative research presents the data in the form of a mode from the results of the percentage of questionnaires that respondents have filled out. The larger the mode data, the greater the agreement or similarity between respondents. The mode data for the type of learning model the class XI biology teacher applied during the first semester of online learning is show in Table 1.

Table 1. Biology Learning Model Mode for Class XI SMA Semester 1 during Online

No.	PB	Types of Learning Models							Competency Achievements	
		PBL	PjBL	SL	FIL	SIL	GIL	Other	≥ 85%	< 85%
A	PB 1	25%	12.5%	12.5%	-	12.5%	37.5%	-	50%	50%
	PB 2	33.3%	22.2%	11.1%	-	11.1%	22.2%	-	33.3%	66.7%
	PB 3	44.4%	-	11.1%	-	22.2%	22.2%	-	66.7%	33.3%
	PB 4	22.2%	11.1%	11.1%	11,1%	11.1%	33.3%	-	50%	50%
	PB 5	37.5%	25%	12.5%	-	-	25%	-	50%	50%
	PB 6	40%	10%	10%	20%	10%	10%	-	50%	50%
B	PB 1	16.7%	16.7%	-	-	16.7%	33.3%	16.7%	50%	50%
	PB 2	14.3%	28.6%	-	-	14.3%	28.6%	14.3%	50%	50%
	PB 3	25%	12.5%	-	-	12.5%	37.5%	12.5%	50%	50%
	PB 4	-	25%	-	-	25%	37.5%	12.5%	33.3%	66.7%
	PB 5	14.3%	14.3%	-	-	14.3%	42.9%	14.3%	50%	50%
	PB 6	12.5%	12.5%	-	-	37.5%	25%	12.5%	16.7%	83.3%

Based on Table 1, it can be seen that the mode of learning model used by biology teachers at SMAN Kota Yogyakarta in each subject of class XI semester 1 is the PBL learning model. Each of these subjects has the highest percentage compared to other learning models, except for the issue of cell structure and function. At the same time, the learning model mode used by the class XI teacher at SMAN Gunungkidul Regency is the guided inquiry learning model with the highest percentage of all subjects. It can also be seen that the achievement of student competencies in each subject matter. The achievement of student competence is still relatively low. This is evidenced by the results of the competency achievements that most appear are <85% of students who have not reached the KKM. However, in some subjects, the percentage of competency achievement results are the same, namely 50% and 50%, which means that some students have reached the KKM. Supporting factors of students reach KKM is show in Table 2.

Table 2. Supporting Factors 85% of Class XI High School Students Reach KKM

No.	Subject	Competency Achievements	Supporting factors				
		≥ 85%	a	b	c	d	E
A	Cell structure and function	50%	25%	25%	12.5%	37.5%	-
	Bioprocess	33.3%	33.3%	33.3%	33.3%	-	-
	Plant tissue	66.7%	57.1%	28.6%	14.3%	-	-
	animal network	50%	60%	20%	20%	-	-
	Motion system	50%	28.5%	43%	28.5%	-	-
	Circulation system	50%	33.3%	33.3%	33.3%	-	-
B	Cell structure and function	50%	40%	-	20%	40%	-
	Bioprocess	-	-	-	-	-	-
	Plant tissue	50%	40%	40%	-	20%	-
	animal network	33.3%	50%	25%	-	25%	-
	Motion system	50%	16.6%	33.3%	16.6%	33.3%	-
	Circulation system	16.7%	50%	50%	-		-

Based on Table 2, the mode or data percentage of the most supporting factors so that 85% of class XI students at SMAN Kota Yogyakarta and SMAN Kabupaten Gungkidul reach the KKM on several biology subjects in semester 1, the learning model factor has been used several times and is effective. However, on the subject of cell function structure, the supporting factor that most supports the achievement of student competence is that the subject matter is considered not too tricky. Another factor that also supports the achievement of student competence is that the teacher understands and can apply the syntax of the model used. Inhibiting Factors of students is show in Table 3.

Table 3. Inhibiting Factors So >85% of Class XI Students Have Not Reached KKM

No.	Subject	Competency Achievements	Obstacle factor				
		< 85%	A	b	c	d	E
A	Cell structure and function	50%	-	-	50%	25%	25%
	Bioprocess	66.7%	-	-	50%	25%	25%
	Plant tissue	33.3%	-	-	66.7%	33.3%	-
	animal network	50%	-	-	50%	50%	-
	Motion system	50%	-	-	60%	40%	-
	Circulation system	50%	-	-	50%	50%	-
B	Cell structure and function	50%	-	-	50%	25%	25%
	Bioprocess	100%	-	-	71.4%	28.6%	
	Plant tissue	50%	-	-	50%	25%	25%
	animal network	66.7%	-	20%	60%	-	20%
	Motion system	50%	-	25%	50%	-	25%
	Circulation system	83.3%	-	-	83%	7%	

Based on Table 3, the mode of inhibiting factors that cause <85% of class XI students at SMAN Yogyakarta City and Gunungkidul Regency have not reached the KKM factor that students lack motivation

and are not ready to be active in learning. Another factor that hinders student competence achievement is that the subject is considered difficult, but the percentage is small.

Discussion

Implementation of Biology Learning Models

Based on the results of research that has been conducted in 12 SMAN Yogyakarta City and Gunungkidul Regency, it can be seen that class XI biology teachers most often apply the biology learning model during the first semester of online learning is the PBL model and guided inquiry learning. Several other learning models are also applied to biology, but only a few teachers use these models. The models are the PjBL model, semi-guided and free inquiry learning model, service-learning model, and discovery learning model. This is also a learning model recommended by the government to be applied in learning. The PBL and guided inquiry models are biology learning models that can improve students' critical thinking processes. The PBL model encourages students to think critically through problem-solving, while the recommended inquiry model encourages students to think critically through guided discovery. The driven inquiry learning model is an inquiry learning model whose procedures and investigations are carried out by students but still refer to statements directed by the teacher. This learning model is suitable to help students find their knowledge through the investigation process but still under the teacher's supervision.

The first subject, namely the structure and function of cells, is mainly taught using the guided inquiry learning model, both at schools in the City of Yogyakarta and Gunungkidul. The driven inquiry learning model is an inquiry learning model whose procedures and investigations are carried out by students but still refer to statements directed by the teacher. This learning model is suitable to help students find their knowledge through the investigation process but still under the teacher's supervision. The subject of cell structure and function has a slightly abstract material character because it must carry out microscopic observations to help determine the stricture of living cells. However, in current learning, students cannot conduct microscope observations in the laboratory because education is conducted online or online, so teachers must prepare other alternatives to achieve learning objectives. One of the efforts made by the teacher is conducting learning through zoom meetings by displaying illustrations of the appearance of the cell and the organelles in it, and the function of each organelle.

The second subject in biology class XI semester 1 is bioprocesses in cells. This subject is taught using several learning models. Still, the learning model most widely used by teachers in this subject is the PjBL model, with a percentage of 33.3% for SMAN in Yogyakarta City and 28.6% for SMAN in Gunungkidul Regency. This PjBL model is a project-based learning model designed to address real-world problems and social issues in everyday life (Sari et al., 2019; Sucilestari & Arizona, 2018). The public model also requires students to be active and independent in learning. Through this online pjbl model, students can gain meaningful understanding and improve problem-solving and critical and creative thinking (Arizona et al., 2020; Purawati et al., 2016). In addition, the problems posed through the PjBL model can also increase students' learning motivation and exchange information between friends so that issues are easier to solve (Haryadi, R., & Pujiastuti, 2022; Syakur et al., 2020). This subject of bioprocesses is appropriate when taught using the PjBL model because this subject targets students to be able to analyze various bioprocesses in cells, including membrane transport mechanisms, reproduction, and protein synthesis.

The third and fourth topics in biology class XI SMA semester 1 are about tissues (plant and animal tissues). Based on the results of research at SMAN Yogyakarta City and Gunungkidul Regency, the subject of plant and animal tissue is most often taught using the PBL learning model and guided inquiry learning. Characteristics of plant and animal tissue material are very closely related to the environment because plants and animals are often found in the surrounding environment. Therefore, this subject is appropriate if it is taught with a learning model that encourages students to be active in learning, such as conducting investigations and experiments to find concept facts. In this subject, students should be directed to observe preserved tissue or fresh tissue through a microscope. Still, in the current online learning conditions, it is not possible to have practical work in the laboratory. Therefore, learning experiences limitations and requires teachers to innovate in learning models.

The PBL model, applied to the subject of plant and animal tissues, allows the teacher to give students problems regarding the problems around them. Students solve these problems by collecting information related to existing problems to find solutions. The PBL model requires students to actively find concepts through problem-solving (Nafi'ah et al., 2022; Shofiyah & Wulandari, 2018). The recommended inquiry model is an inquiry model whose procedures and experiments are carried out by students but are still under the teacher's guidance (Khalaf & Zin, 2018; Nababan et al., 2018). Meanwhile, through the guided inquiry model, students can find concepts from plant and animal tissues through investigations around them. Students can find facts and pictures from the inquiry and information searches on the internet. Based on the research results, this learning model online is applied by dividing students into small groups to

discuss the given topic. Previous research has also stated that the guided inquiry model is appropriate for biology lessons and significantly improves science skills (Iswatun, I., Mosik, M., & Subali, 2017).

The fifth subject in biology lessons is the human movement system. This discussion discusses the organs in the motion system and their functions, various types of motion and mechanisms, and disturbances that may occur in the human movement system. Based on the results the subject of movement systems is mostly taught using the guided inquiry learning model. The driven inquiry model is a discovery learning model where at the stage, it is still guided by the teacher. Based on the results of this study, the application of the guided inquiry model to the subject of the human movement system while online was taught through small group assignments. Students are given direction and guidance first by the teacher regarding the topic to be investigated, then students conduct discussions and collect information through various sources.

The sixth subject in biology learning in Class XI SMA semester 1 is the circulatory system of the human blood circulation system. The characteristics of this subject are microscopic because the process occurs in the body and cannot be observed directly. Based on the results the most widely used learning models for teaching this subject are the PBL and Semiguided inquiry learning models. Biology teachers at SMAN Kota Yogyakarta mostly use the PBL learning model, which is as much as 40%. Meanwhile, biology teachers at SMAN Gunungkidul Regency mostly use the semi-guided inquiry learning model, which is 37.5% compared to other learning models.

Achievement of Competence and Influencing Factors

The first subject in biology class XI is the structure and function of cells. The competencies that must be achieved in this subject are "students can explain the chemical components that make up cells, structures, functions, and processes that take place in cells as the smallest unit of life." Competencies of high school students include the competence to explain and analyze. Based on the research results in table 1., the achievement of competence in this subject is that 50% of students have reached the KKM, and 50% have not yet reached the KKM. The accomplishment of competence between schools in Yogyakarta and Gunungkidul Regency is the same. Several supporting factors and inhibiting factors influence these results.

The main factors considered not too tricky are the most supporting so that students in Yogyakarta City High School and Gunungkidul Regency can reach the KKM. Another supporting factor, namely the teacher's factor, has applied the learning model several times and is effective. The teacher understands and can use the model's syntax. Meanwhile, the factors that cause students not to reach the KKM are the lack of motivation to learn, subjects considered problematic, and the inability to carry out practical observation activities. The most inhibiting factor that some students have not reached the KKM are students who lack motivation and are not ready to be active in learning. This is because education is done online, so teachers cannot monitor students directly and observe the concept discovery process. Learning activities are limited to reference sources such as videos, pictures, textbooks, or e-books. Therefore, students become less motivated to learn the subject of cell structure and function, most of which cannot be found in real life.

The second subject in biology class XI SMA is bioprocess. The achievement of competence on bioprocess is still low because > 50% of students have not yet reached the KKM. Students at SMAN Yogyakarta City who have earned the KKM are 33.3%, while all students in SMAN Gunungkidul Regency have not reached the KKM limit. Several factors influence the low achievement of student competence. The most important factor that hinders the achievement of student competence is the lack of motivation and readiness of students to be active in learning. Motivation is an essential thing in the learning process. Students with high learning motivation will be involved in the learning process in class. Students whose learning motivation is less likely to be passive in class and do not complete assignments (Baber, 2020; Xie et al., 2020). In this online learning, students' learning motivation decreases because they are not used to dealing with online learning. In addition, the availability of the internet network is also influential in supporting the implementation of distance learning.

Another factor that also affects the achievement of student competence in this subject is because the matter of a bioprocess is considered too difficult. The issue of bioprocesses in cells is abstract because the processes and mechanisms occur in cells and cannot be observed directly. Students need visualization or learning media that supports them so that the concept of bioprocesses in cells can still be appropriately understood. In this case, the teacher's role is to facilitate students to understand the idea of the material correctly. Teachers can make efforts to teach this subject, including presenting videos describing bioprocesses in cells, membrane transport mechanisms, cell reproduction, and protein synthesis. This subject is difficult to teach because it is in the form of instruments or a series of processes that occur in cells, so a deep understanding of the material is needed.

The achievement of competence in plant and animal tissue at SMAN Yogyakarta City and SMAN Gunungkidul Regency has not reached the maximum KKM. Several factors influence the achievement of these competencies. The most supportive factor is that 85% of students call the KKM because the model has

been used several times and is effective. The PBL model has often been applied by teachers and effectively improves student learning outcomes. The PBL model can also enhance students' critical, creative, and innovative thinking skills. Build the curiosity of students during the problem-solving process. Meanwhile, the inhibiting factors so that some students have not reached the KKM are students who lack motivation and are not ready to be active in learning and the main factors that are considered problematic. The reason is fundamental to fostering students' enthusiasm for learning, so they will be involved when learning occurs.

In addition, several teachers also revealed that a factor affecting the lack of competency achievement is that many biological terms are challenging to understand and memorize, such as the names of networks, shapes, and functions. Students can feel directly and practice the object of study on this subject, making it easier to understand the subject being taught. Teachers can also easily apply the learning model by asking questions related to the human movement system experienced daily, then asking students to conduct investigations related to the problems given.

The 5th subject in biology class xi high school is the human movement system. The competence on the subject is quite good because most students have reached the KKM for both SMAN in Yogyakarta City and Gunungkidul Regency. The achievement of student competencies so that students can achieve the KKM is influenced by several factors. Based on the results the most influential supporting factor is the teacher's understanding and ability to apply the syntax of the model used. The achievement of student competence in subject five has not yet fully reached the KKM. This is due to several inhibiting factors that affect the achievement of student competence. The most influencing factor is that students lack motivation and are not ready to be active in learning. Students who lack the motivation to learn tend to be passive in classroom learning, less responsive to teacher questions, and sometimes do not pay attention to teacher explanations. If this happens continuously, students cannot master the competencies targeted in the material, so their learning outcomes will also decrease.

The achievement of competence in subject 6 is still relatively low because more than 50% of students have not reached the KKM. 50% of students at SMAN Kota Yogyakarta have achieved the KKM, while students at SMAN Kabupaten Gunungkidul who have completed the KKM are 16.7%. Several factors influence the lack of achievement of student competence. The most influencing factors are the lack of motivation to learn, the readiness of students to take part in learning, and the subject being considered difficult. Students' learning motivation is one of the essential factors in the success of the learning process. With the motivation to learn, students will be more enthusiastic about taking lessons so that the knowledge conveyed by the teacher is easier to understand.

The implications of this study provide an overview of the application of biology learning model on low competency achievement in the covid-19 pandemic. So that the learning model is more optimized and encourages students to be more active when learning activities take place. Researchers recommend teachers should play a role in increasing student learning motivation so as to foster student enthusiasm. This research is also still very limited, there is a need for more in-depth research regarding the effectiveness of implementing learning models and achieving student competencies that are specific to authentic assessment in high school.

4. CONCLUSION

Teachers implement several types of biology learning models in online learning, such as PBL, PjBL, Guided Inquiry Learning, Semiguided Inquiry Learning, and Discovery Learning. However, the learning models that class xi biology teachers mainly apply to support the achievement of student competence during online learning are the PBL and Guided Inquiry Learning models. The achievement of the competence of class XI high school students during online learning is still generally low. This is indicated by the many subjects that have not reached the KKM optimally, but there are several subjects with the same percentage of achievement between students who have reached the KKM and those who have not. The factor that most supports the achievement of student competence during online learning is the factor of the learning model that has been used several times and is effective. While the most inhibiting factor so that the achievement of student competence is not maximized is the factor that students lack motivation and are less active in learning.

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