

## Curriculum 2013: Analysis of biology teachers' obstacles in senior high schools, Sungai Kanan district

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### ABSTRACT

This study aims to explore the obstacles of biology teachers in Sungai Kanan senior high schools have in implementing the curriculum 2013. In this qualitative study, biology teachers in high schools in the Sungai Kanan District served as the subjects. The population utilized is comprised of high school teachers from the Sungai Kanan District, including six individuals from SMAN 1 Sei Kanan, SMAN 2 Sei Kanan, and SMAS Karya Handayani. The approach employed is purposive sampling, questionnaires and interviews are utilized to obtain data. According to the findings of an examination of the hurdles biology instructors face in adopting the 2013 curriculum, which has been in place for about eight years, senior high school biology teachers in the Sungai Kanan subdistrict have no obstacles to implementing the 2013 curriculum. Biology teachers' comprehension of the indicators of biology teachers' comprehension in the 2013 curriculum; biology teachers' comprehension of the 2013 syllabus; biology teachers' comprehension of the 2013 lesson plans; biology teachers' comprehension of the biology lesson process; biology teachers' comprehension of the 2013 curriculum's facilities and infrastructure; and biology teachers' comprehension of the biology lesson process This problem is caused by the fact that the 2013 biology teacher's manual was not finished yet, lack of time, teachers and students, infrastructure, and supportive facilities.

**Keywords:** curriculum 2013, high school, obstacle, teacher

### INTRODUCTION

The curriculum is the most important thing and cannot be separated and separated in the world of education, that the existence of an educational curriculum will go in a good and clear direction. This can be seen since the independence of the Indonesian nation until now when carrying out education there is always a curriculum which is the main guide and guide for every teacher and student. For the world of education, Indonesia was able to make changes to the curriculum around 10 times from 1947 to 2013, this shows that Indonesia is trying and struggling to achieve the best educational ranking according to the progress of the times and current technology (Astri et al., 2021).

The 2013 curriculum is a change of the KTSP curriculum from the previous curriculum, which has something to improve the student learning process in honing abilities and growing

student character in aspects that include, affective aspects, psychomotor aspects, and cognitive aspects (WPS et al., 2016).

In learning activities, the 2013 curriculum learning process has a scientific approach or a scientific approach is a way of learning related to scientific activities such as asking, trying, discussing, gathering information, and reasoning, as well as observing activities, creating networks in learning activities at school (Nurlaila, 2013).

However, in this case the change of curriculum still raises new problems so that when implementing it there are obstacles and difficulties encountered, this is reinforced and stated by Asmarani (2018) who has conducted previous research which states that when implementing the 2013 curriculum it was carried out during the process learning biology, there are still points of difficulty such as difficult to determine learning models that are in

accordance with basic competency, difficulty in determining the use of media and the difficulty of conducting effective assessments with a large number of students in a short time.

The impacts of curriculum changes felt in Indonesia have good and bad impacts, the good impact is that students can learn by keeping up with increasingly advanced times with the support of school principals, teachers, teaching staff, students and even the institution itself. The school principal tries to establish friendly relations and have good relations with his superiors and foster good relations with his subordinates. The negative impact is that the quality of education decreases and changes in the curriculum that so quickly cause new problems such as decreased student achievement because students cannot adapt to the learning system in the new curriculum (Hasanah, 2018).

According to Putri (2019), the impact of implementing the curriculum often changes, not only having a negative impact on students whose achievements are getting lower, but this change also has an impact on schools, namely on the vision and goals of a school which are essentially not structured as expected. The impact of curriculum changes that can be felt directly can be seen from the gap in the process of learning activities which begins with changes in the subject system, study time, competencies that must be possessed and the learning and learning process while it is taking place in the classroom.

Another impact on implementing the 2013 curriculum for educators in the learning process was also put forward by Hamidah & Syakir (2019) stating that there were positive and negative impacts in implementing the 2013 curriculum. The positive impact is that teachers can think critically and innovatively during the learning process while the negative impact is that there are teachers whose schools are still limited in terms of facilities and infrastructure.

The impact of curriculum changes in senior high schools throughout Sungai Kanan District has had an impact on all aspects of the school, both from positive and negative impacts. The impact felt from changing the curriculum is not only from the student level but also from the teacher level, the school and even from the students' parents. Everyone felt the impact. The impact felt by students, especially in the learning process, students are required to be more independent and think critically, the amount of material given and increased class time make students feel dizzy, students feel they will be under academic pressure. The learning load of students is so great and the study time at school is getting longer, making them have to master all the material. Another impact from the implementation of the 2013 curriculum, students felt that there were several missing subjects in the 2013 curriculum and there were also additional subjects. This also has an impact on the parents of students who have to buy all the new books in accordance with the 2013 curriculum because books are not being bought and sold at schools for fear of cheating so students and parents are busy looking for sources of study books.

Teachers, the task of the teachers definitely increases. With the new curriculum, of course teachers have different tasks and loads that also increase. The changes that are felt to be very significant are the burden and the many assessment tasks that must be assessed with great care. Not only the assessment but also the problem of drafting the lesson plan that must be replaced. Teaching methods must be replaced with new innovations and creations.

According to Amelia (2021) many educators are not ready to implement the 2013 curriculum. Educators are not ready psychologically because the 2013 curriculum requires educators to be more creative with such a small number of teachers. Therefore, it takes a long time for educators to open their minds. One of them is by changing through

training and education the paradigm of educators as providers to become educators who can awaken students' creativity.

The impact felt by schools in the implementation of the 2013 curriculum was in school buildings, there were several schools whose buildings were divided into two schools as was felt by several high schools in Sungai Kanan District where the school building had to alternate with other schools during the day so that several schools in SMA in Sungai Kanan District were unable to implement the old return system in implementing the 2013 curriculum.

Factors causing delays in the implementation of the 2013 curriculum were caused by a lack of understanding of teachers in preparing lesson plans, a lack of teachers understanding the 2013 curriculum and a lack of teachers participating in 2013 curriculum training due to the lack of socialization and lack of training for teachers (Ayuriyanti, 2015).

Learning Biology is one of the sciences that can study a living creature and its environment. In carrying out biology learning, teachers must be able to understand and know the functions of organs in the body and structures to be conveyed to their students.

Teachers are the most important human resources in the implementation of the curriculum 2013. The ability of teachers in implementing the curriculum is very necessary. The role of the teacher in implementing the curriculum is very important, the presence of the teacher in the course of the lesson has a major role for implementation in the implementation of the curriculum (Mariamah, et al., 2019).

Based on the related problems above, the researcher wants to know and seek information and conduct research on the analysis of biology teachers' obstacles in implementing the curriculum 2013 at senior high school throughout Sungai Kanan District from the aspect of biology teacher understanding in the

curriculum 2013, biology teacher understanding in compiling the 2013 syllabus, teacher understanding biology teachers in preparing the 2013 lesson plan, biology teachers' understanding in conducting biology lessons in utilizing the 2013 curriculum facilities and infrastructure as well as biology teachers' understanding in conducting assessments so that they can identify what obstacles and difficulties are experienced by biology teachers in high schools in Sungai Kanan District related to the implementation of the 2013 curriculum. This study aims to analyze the barriers of biology teachers in implementing the 2013 curriculum in high schools throughout Sungai Kanan District and the efforts made.

## METHOD

This research was conducted in December 2021 in senior high schools of Sungai Kanan District which included SMAN 1 Sei Kanan, SMAN 2 Sei Kanan and SMAS Karya Handayani. This type of research used a qualitative approach, according to Miles & Huberman (1992) qualitative is a source of extensive descriptions and contains an explanation of the processes that occur in the local environment. The population used was high school teachers in Sungai Kanan District which included 1 Sei Kanan SMAN, 2 Sei Kanan SMAN and Karya Handayani SMAS as many as 6 people, while the total sampling sample were 6 high school biology teachers in Sungai Kanan District which included SMAN 1 Sei Kanan, SMAN 2 Sei Kanan and SMAS Karya Handayani. Sampling using total was sampling where the number of samples was the same as the population, due to taking total sampling the population was less than 100 (Sugiyono, 2014).

The data collection technique was done by giving direct interviews and response questionnaires to teachers regarding the biology teacher's obstacles in implementing the 2013 curriculum in high schools throughout Sungai Kanan District using the google form. The

questionnaire distribution technique was done by sharing the Google Form link via WhatsApp media to teachers using 5 options. The indicators in this study are: (1) Biology teacher's understanding in implementing the 2013 curriculum, (2) Biology teacher's understanding in compiling the 2013 curriculum learning syllabus, (3) Biology teacher's understanding in compiling the 2013 curriculum lesson plan, (4) Biology teacher's understanding in Implementation of curriculum 2013 learning, (5) Understanding of biology teachers in utilizing curriculum 2013 facilities and infrastructure, (6) Understanding of biology teachers in conducting assessment of curriculum 2013 learning and this research was also supported by the results of interviews with information that has capacity according to research needs.

The initial preparation stage was carried out by observing and conducting observations and interviews with biology teachers at SMAs in Sungai Kanan District at the research location at SMA schools in Sungai Kanan District. The next stage is to make guidelines for interview statements, as well as a grid on the emotional intelligence of biology teachers and students' scientific attitudes, then proceed with making a question and proceed with instrument validation to expert validators, the data collection instruments used are interviews and

questionnaires distributed via google form, the biology teacher's obstacle instrument in implementing the 2013 curriculum at high schools in Sungai Kanan District, is a modification of [Vasmin et al., \(2020\)](#), [Adzierah & Hikmatang \(2020\)](#) and [Agustin et al., \(2020\)](#).

This research was conducted with the main data source coming from the answers of respondents using a questionnaire that had previously been validated, the questionnaire contained a number of statements, each of which had been given a score. The questionnaire that was distributed consisted of 35 statements with answer options of doubtful, strongly agree, disagree, agree, strongly disagree. After the questionnaire containing 35 statement items was obtained, it was then analyzed by giving a value (score) for each answer.

Questions were given to respondents using a Likert scale measuring instrument with a maximum value of five, in responding to statements, respondents were asked to provide responses to what they felt. The data given to teachers in the form of questionnaires and interviews will then be analyzed using descriptive analysis. The questionnaire grid regarding the analysis of biology teachers' obstacles in implementing the 2013 curriculum at SMAs in Sungai Kanan District can be seen in Table 1.

Table 1. Questionnaire grids for analysis of biology teachers' obstacles in implementing the curriculum 2013 at senior high schools in Sungai Kanan District

Numbers	Indicators	Question Numbers	Number of Statement Items
1	Understanding of Biology Teachers in Applying the 2013 Curriculum	1,2,3,4,5,6,7,8,9	9
2	Understanding of Biology Teachers in Developing the 2013 Curriculum Learning Syllabus	10,11,12,13,14,	5
3	Understanding of Biology Teachers in Compiling RPP Curriculum 2013	15,16,17,18,19	5
4	Understanding of Biology Teachers in the Implementation of 2013 Curriculum Learning	20,21,22,23,24,25	6
5	Understanding of Biology Teachers in Utilizing 2013 Curriculum Facilities and Infrastructure	26,27,28,29,30	5
6	Understanding of Biology Teachers in Conducting Assessment of 2013 Curriculum Learning.	31,32,33,34,35	5
<b>Total</b>			<b>35</b>

**RESULTS AND DISCUSSION**

Based on the results of research conducted by researchers on the analysis of biology teachers' barriers in implementing the curriculum 2013 at senior high school throughout the Sungai Kanan District, then from Figure 1 below the results obtained from the indicators for biology teachers' barriers in implementing the curriculum 2013 at senior high school throughout Right River District. The data that has been obtained shows that biology teachers in high schools in Sungai Kanan District experience obstacles in implementing the 2013 curriculum on indicators (1) Understanding of biology teachers in

implementing the 2013 curriculum of 84.33% with 15.67% obstacles (2) Understanding of biology teachers in compiling the 2013 curriculum learning Syllabus it was 87.50% with a 12.50% barrier (3) Biology teachers' understanding in preparing the curriculum 2013 lesson plan was 88% with a 12% barrier (4) Biology teachers' understanding in the 2013 curriculum learning Implementation was 85% with obstacles 15% (5) Biology teachers' understanding in utilizing 2013 curriculum facilities and infrastructure is 80% with 20% barriers (6) Biology teachers' understanding in assessing curriculum learning 2013 is 90.83% with 9.17% barriers this can be seen in Figure 1.

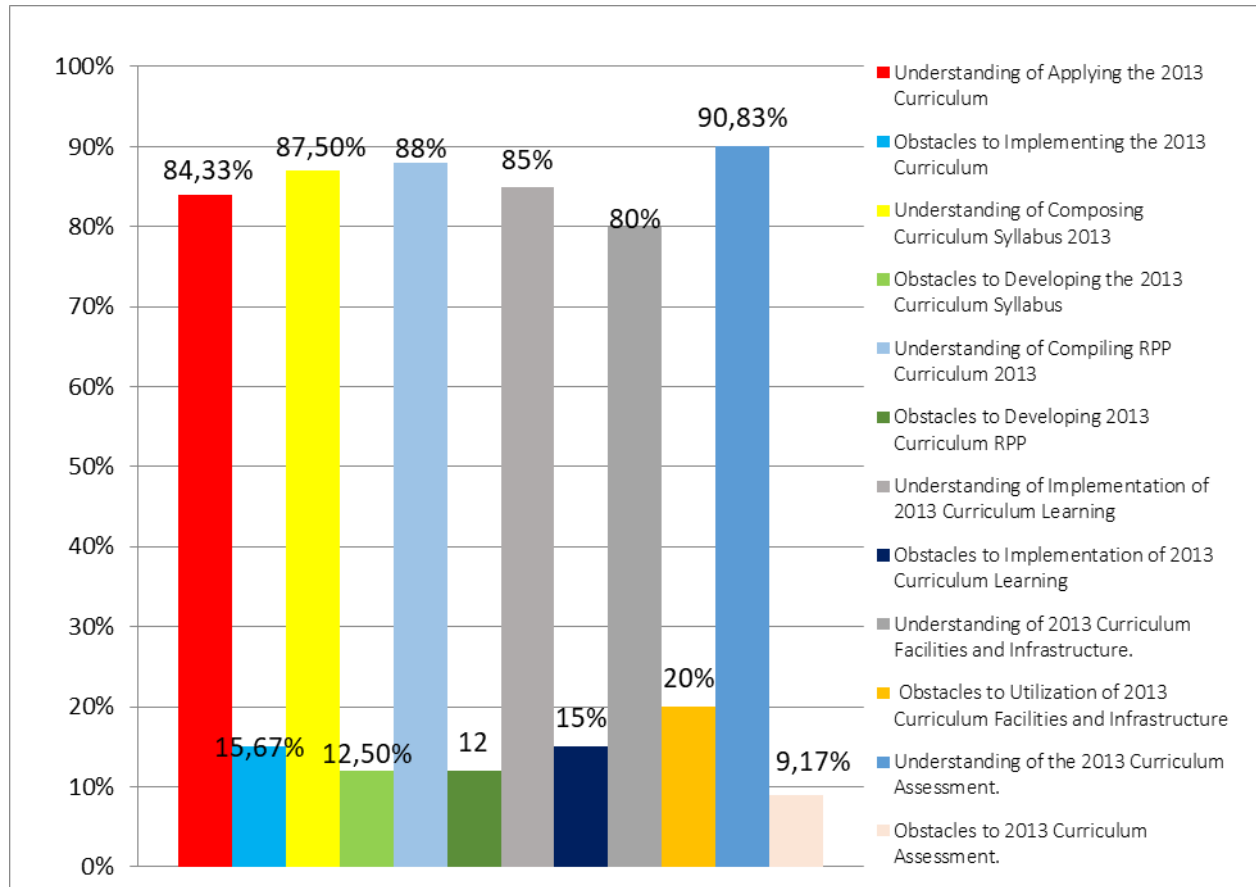


Figure 1. Biology teachers' obstacles in implementing the curriculum 2013 at senior high schools in Sungai Kanan District.

**Understanding of biology teachers in applying the 2013 curriculum**

The understanding of biology teachers in implementing the 2013 curriculum shows a percentage of 84.33% with very good criteria

and experiencing slight obstacles of 15.67%. Based on the results of the questionnaire responses, it was found that the things that led to the achievement of understanding of biology teachers were very good because teachers always exchanged opinions with other teachers

about implementing the curriculum, some biology teachers always attended curriculum implementation training that schools held. The main factor determining the success of the curriculum lies in the teacher's understanding of the core of the curriculum itself.

Obstacles and difficulties for teachers in implementing the 2013 curriculum based on interviews obtained, including 2 biology teachers in high schools in Sungai Kanan District, did not really understand the objectives of the curriculum 2013, and even only attended curriculum training once because at the time the curriculum training was held the teacher was taking leave so the biology teacher felt that this was not sufficient, as a result the biology teacher's understanding in implementing the curriculum 2013 was lacking.

According to [Hamidah & Syakir \(2019\)](#) it states that in 2018, the government has started to implement the 2013 curriculum as a whole in schools. Whether it's for those who are ready or not ready, this must be accepted by the teachers like it or not.

#### ***Understanding of biology teachers in developing the curriculum 2013 learning syllabus***

The biology teacher's understanding in compiling the curriculum 2013 learning syllabus shows a percentage result of 87.50% with very good criteria and experiencing slight obstacles of 12.50%. Based on the results of the questionnaire responses, it was found that the things that led to a very good understanding of biology teachers were because teachers often attended curriculum training.

Obstacles and difficulties for teachers in compiling a learning syllabus for the 2013 curriculum at SMAs in Sungai Kanan District were caused by the conditions and circumstances of the schools, teaching staff, and students who were all lacking, teachers' difficulties in making assessments, especially in assessing attitudes because the assessment in

the curriculum included indicators that so many.

Efforts made by the biology teacher in overcoming this by seeking the help of colleagues who are experts in this matter, always following the socialization that the school holds and making their own creative and innovative learning resources so that students' understanding in understanding learning can increase.

#### ***Understanding of biology teachers in compiling curriculum 2013 lesson plan***

The biology teacher's understanding in compiling the curriculum 2013 lesson plan at senior high school in Sungai Kanan District shows a percentage result of 88% with very good criteria and experiencing slight obstacles of 12%. Based on the results of the questionnaire responses, it was found that the teacher had no difficulty in developing indicators, had no difficulty in determining learning models and methods, and had no difficulty in formulating learning objectives. The teacher attended the curriculum 2013 training that the school held and the smooth internet network that was obtained during the preparation of lesson plans.

Obstacles and difficulties for teachers in preparing lesson plans for the curriculum 2013 were caused by insufficient time available and the difficulty of teachers in determining the time allocation for the amount of material to be delivered.

[Nurhayati \(2013\)](#) states that teachers can use learning media to simplify and simplify material. By using learning media, teachers can explain to students with detailed and clear material so that the subject matter that the teacher provides is easily understood by students. What the teacher did to overcome this obstacle was by adjusting the time allocation for delivering material with the calendar of academic guidelines. Calendar of academic can assist teachers in completing learning activities in a timely manner because Kaldik has been

directed and there is a complete educational schedule so that teachers can plan the allocation of learning time.

### ***Understanding of biology teachers in the implementation of curriculum 2013 learning.***

The biology teacher's understanding in implementing the 2013 curriculum at SMAs in Sungai Kanan District showed a percentage gain of 85% with very good criteria and experienced a slight obstacle of 15%. Based on the results of the questionnaire responses, it was found that the things that led to a very good understanding of biology teachers were because biology teachers did not experience difficulties in the steps of implementing the 2013 curriculum learning process, especially in applying learning methods and models, because biology teachers were in high schools in Sungai Kanan District has implemented the implementation of learning by means of peer tutoring and groups that can make students become innovative, productive, active, and creative.

The teacher increases student activity by means of peer tutoring, group division, conducting remedial and providing rewards for active students. It is hoped that it is hoped that the help of classmates with the help of peer tutors will be easier to understand because they can solve the problems faced by them. The division of groups with varying levels of achievement in class can encourage students who have difficulty understanding the material to understand the material more easily, because students who already understand the material provided can help their friends who do not understand by working together to solve the problems given to their group.

The remedial function is made by the teacher to improve student learning outcomes that are unsatisfactory. Teachers need to provide support and motivate students so that students are more active in following the learning model implemented by the teacher, namely by giving rewards in the form of grades,

praise, or objects that motivate so that students can be even more enthusiastic about carrying out learning (Ayuningrum, 2016).

Obstacles and difficulties for teachers in implementing the 2013 curriculum learning process are caused by a lack of learning resources, media infrastructure and facilities that are not supportive at school and are not adequate enough to make it difficult for teachers to carry out lessons in accordance with the demands of the 2013 curriculum (Yulianti, 2014).

Supriadi (2021) explains that in carrying out the learning process learning resources are really needed, such as laptops, computers, torso and books. If the learning resources are incomplete, it is difficult for the teacher to create a new atmosphere in the implementation of learning for students and the lack of student feedback to the teacher when the teacher delivers the material.

### ***Understanding of biology teachers in utilizing curriculum 2013 facilities and infrastructure***

The understanding of biology teachers in utilizing the 2013 curriculum facilities and infrastructure at SMAs in Sungai Kanan District shows that the percentage results are 80% with very good criteria and experience slight obstacles of 20%. Based on the results of the questionnaire responses, it was found that the reason why biology teachers' understanding was very good was because biology teachers in SMAs in Sungai Kanan had fully understood and used the facilities and infrastructure in implementing the 2013 curriculum that schools provided properly and optimally. The biology teacher's understanding of using the right and good facilities can be seen during the lesson, where the teacher has previously prepared learning resources that will be used during the learning process in the classroom and outside the classroom as is the case with practicum.

Obstacles and difficulties for teachers in understanding the use of curriculum 2013 facilities and infrastructure in SMAs in Sungai

Kanan District are caused by the 2013 curriculum facilities and infrastructure provided in schools are not yet optimal, the facilities and infrastructure that schools provide in implementing the 2013 curriculum learning are still incomplete and lacking. adequate.

These obstacles were initially caused by the school's indifference to the maintenance of facilities which would result in damage to facilities and infrastructure, indifference and lack of supervision from the government, many facilities in schools were neglected. A small number of teachers still feel that the laboratory rooms in schools are inadequate to carry out practicum activities. The way the teacher handles this is by arranging tools and materials neatly, proposing repairs to parts of the room that have been damaged, and inviting students to keep the laboratory clean. If the state of the laboratory does not allow it to be used as a practicum activity, then the teacher can use a tool that can be brought to class so that it is not fixated on the laboratory room as a place for carrying out practicums (Subamia, 2014).

School facilities or facilities are one of the supports for the learning process towards implementing effective, creative, and innovative learning. Limited school facilities will not be able to produce effective learning in order to create learning outcomes for students who are creative and innovative with inadequate facilities, teachers will not be able to produce learning processes and outcomes that are in accordance with the goals and demands of the lesson to be achieved.

#### ***Understanding of biology teachers in conducting assessment of curriculum 2013 learning***

The biology teacher's understanding in conducting the 2013 curriculum learning assessment showed a percentage result of 90.83% with very good criteria and experiencing slight obstacles of 9.17%. Based on the results of the questionnaire responses, it

was found that the reason why biology teachers' understanding was very good was because biology teachers in high schools in Sungai Kanan always used assessment techniques that varied according to the abilities of the students themselves.

Obstacles and difficulties for teachers in conducting assessments at SMAs in Sungai Kanan District were caused by the teacher's lack of understanding in making the 2013 curriculum assessment instruments which included student skills, attitudes, social, and knowledge. Biology teachers at SMAs in Sungai Kanan District admitted that they could not provide optimal assessments with so many students and such a short amount of time so that biology teachers in SMAs in Sungai Kanan had difficulties and obstacles in conducting assessments with time. limited, it is difficult to carry out an assessment of the learning process because it is less effective (Makaborang, 2019).

The teacher's efforts to overcome this by coordinating with other teachers and asking students to get clear information so that assessments can be carried out optimally with the help of this information (Nuriana, 2018).

#### **CONCLUSION**

Based on the results of the research questionnaire and discussion on the analysis of biology teachers' barriers in implementing the 2013 curriculum at SMAs in Sungai Kanan District, it can be concluded that the results of the analysis of biology teachers' barriers in implementing the 2013 curriculum after being implemented for approximately 8 years, biology teachers in High Schools in Sungai Kanan District have no problems in implementing the 2013 curriculum. The biology teacher's understanding of the biology teacher's understanding indicators in the 2013 curriculum, the biology teacher's understanding in compiling the 2013 syllabus, the biology teacher's understanding in compiling the 2013



lesson plan, the biology teacher's understanding in carrying out the learning process biology, the understanding of biology teachers in utilizing the curriculum 2013 facilities and infrastructure as well as the understanding of biology teachers in making assessments of more than 80% is very good while the obstacles they face are only a few, namely less than 20%. This obstacle was caused by the biology teacher's handbook for the 2013 curriculum which was incomplete, insufficient time, conditions and circumstances of the school, teaching staff, and students who were all lacking, lack of media, infrastructure and facilities that were less supportive.

## REFERENCES

- Adzierah, N., Hikmatang, N., & Astiana. (2020). Analisis kinerja guru mata pelajaran biologi dalam implementasi kurikulum 2013. *Jurnal Mappesona*, 3(1), 1-14.
- Agustin, E. R., Kiswardianta, R. B., & Utami, S. (2020). Analisis implementasi kurikulum 2013 dalam perencanaan pembelajaran biologi di SMA Negeri 1 Tegalombo. *Prosiding Seminar Nasional Simbiosis V. 5*, 362-371.
- Amelia, V. (2021). Dampak kurikulum 2013 bagi pendidik dan peserta didik. <http://eprints.umsida.ac.id/8290/>
- Asmarani, V., Achmad, A., & Marpaung, R. R. T. (2018). Identifikasi hambatan pembelajaran biologi dalam pelaksanaan kurikulum 2013 bagi pendidik biologi SMA. *Jurnal Bioterdidik Wahana Ekspresi Ilmiah*, 6(4), 1-10.
- Astri, A., Harjono, A., Jaelani, A. K., & Karma, I. N. (2021). Analisis kesulitan guru dalam penerapan kurikulum 2013 di sekolah dasar. *Renjana Pendidikan Dasar*, 1(3), 175-182.
- Ayuningrum, S., & Peniati, E. (2016). Analisis hambatan guru biologi SMA di Kota Semarang dan pemecahannya dalam implementasi kurikulum 2013. *Unnes Journal of Biology Education*, 5(1), 1-7.
- Ayuriyanti, S. D. (2015). *Hambatan guru dalam perencanaan, pelaksanaan dan penilaian pembelajaran kompetensi keahlian multimedia pada penerapan kurikulum 2013 di SMK se Daerah Istimewa Yogyakarta* [Skripsi]. Universitas Negeri Yogyakarta.
- Hamidah, J., & Syakir, A. (2019). Dampak penerapan kurikulum 2013 bagi guru sekolah dasar di Kecamatan Alalak. *Beoiektik*, 1(2), 75-82.
- Hasanah, N. A., Rasmah, R., & Rijal, M. K. (2018). Learning poverty, implikasi perubahan kurikulum yang belum terselesaikan. *Jurnal Penelitian Pendidikan & Pembelajaran*, 5(3), 34-40.
- Makaborang, Y. (2019). Evaluasi implementasi kurikulum 2013 mata pelajaran biologi di SMA Negeri. *Jurnal Manajemen Pendidikan*, 6(2), 130-145.
- Mariamah, M., Ruwaidah, R., & Rosdiana, R., Syahbuddin, S., Muslim, M. (2019). Analisis kesulitan guru sekolah dasar dalam menerapkan kurikulum 2013 di SDN Belo. *Prosiding Seminar Nasional Pendidikan FKIP*, 2(1), 528-558.
- Miles, M. B., & Huberman, A. M. (1992). *Analisis data kualitatif*. UIP.
- Nurhayati. (2013). Pemberdayaan e-learning sebagai media pembelajaran. *Jurnal Saintech*, 05 (01), 50-57.
- Nuriana, D. (2018). Kendala guru dalam memberikan penilaian sikap siswa pada proses pembelajaran berdasarkan kurikulum 2013. *Journal of Islamic Elementary School*, 2(2), 51-62. <https://doi.org/10.21070/madrosatuna.v2i2.1970>
- Nurlaila, D. U. (2013). *Analisis hambatan pelaksanaan kurikulum 2013 dalam pembelajaran IPA terpadu pada tingkat MTS di Kabupaten Tanggamus* [Skripsi].

UIN Raden Intan Lampung.

- Putri, R. (2019). *Pengaruh kebijakan perubahan kurikulum terhadap pembelajaran di sekolah*. INA-Rxiv. <https://osf.io/preprint/inarxiv/8xw9z/>
- Subamia, I. D. P. (2014). Laboratorium IPA SMP di Kabupaten Buleleng Universitas Pendidikan Ganesha Singaraja Indonesia. *Jurnal Pendidikan Indonesia*, 3(2), 446–459. <https://doi.org/10.23887/jpi-undiksha.v3i2.4461>
- Sugiyono. (2014). *Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D*. Alfabeta.
- Supriadi, B., Yahya, M., & Nur, S. (2021). Faktor penghambatan penyusunan silabus dan RPP kurikulum 2013 bagi guru biologi di SMP Kecamatan Bumal Kabupaten Mamasa. *Jurnal Guru Membangun*, 40(1), 37–47.
- Vasmin, M. E., Syafriati, Y. M., & Sada, M. (2020). Analisis faktor kesulitan peserta didik dalam proses pembelajaran biologi pada implementasi kurikulum 2013. *Jurnal Inovasi Pembelajaran Biologi*, 1(2), 14–23.
- WPS, V. S., Budiarti, R. S., & Gardjito. (2016). Analisis hambatan guru biologi pada implementasi kurikulum 2013 di kelas X MIA SMA Negeri Berakreditasi A se-Kota Jambi. *Jurnal BIODIK*, II(2), 86–95.
- Yulianti. (2014). *Tingkat keterlaksanaan implementasi kurikulum 2013 dalam pembelajaran biologi SMA Negeri di Kabupaten Dompu tahun ajaran 2013/2014*. fdokumen. <https://fdokumen.com/document/artikel-tingkat-keterlaksanaan-dalam-penilaian-pembelajaran-berdasarkan-kurikulum.html?page=3>