

# Exploring Teachers' Perspectives and Challenges in Implementing the Revised Biology Education Curriculum: A Case Study of the Ompundja Circuit

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## Abstract

This study's goal was to learn more about and document teachers' experiences in Ompundja Circuit in Namibia's Oshana region as they implemented the revised biology curriculum. The following main question was used to guide the study: What are the teachers' challenges and experiences when implementing the Biology revised education curriculum in Ompundja Circuit? This study employed an interpretivism methodology to interpret its components and incorporate multiple perspectives. A qualitative research approach was chosen to delve into the deeper meanings and significance of human behavior and experiences. The research design used was a descriptive case study, focusing on a specific occurrence and conducting an in-depth analysis with hypotheses and research objectives. In this study, the population consisted of all schools offering Biology and all Secondary Biology teachers in the Ompundja circuit. Sampling involves selecting a representative portion of the population. For this study, a purposive sampling strategy was employed to select the participants of this study. Fifteen Biology teachers were purposively selected from five secondary schools in the Ompundja Circuit based on their proximity to the researcher, availability, experience, subject taught, and positions held. Semi-structured face-to-face interviews were conducted using interview schedules, allowing for the collection of a substantial amount of relevant data. The collected data underwent qualitative analysis, which involved transcription and coding to identify and analyze themes within the data. The findings revealed that the neediest schools are not receiving prioritized sup-

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port, and the allocated funds do not align with their specific needs, especially for Biology equipment and materials, including the implementation of the revised Biology curriculum. Moreover, the lack of teacher competency and lack of Biology exposure especially to practical works demotivates students to study and understand Biology due to students' insufficient background knowledge of the subject. And finally, teachers avoid using ICT in their teaching of Biology due to a lack of ICT abilities. Lack of trust, on the other hand, was also a major impediment to the integration of Biology teaching education. To address these issues, several recommendations were proposed. These include reevaluating the allocation criteria to prioritize the neediest schools, aligning funds with their specific requirements, and providing additional support through financial assistance, infrastructure improvements, teacher training, and tailored learning materials. It was also recommended to implement regular monitoring and evaluation systems, foster collaboration with stakeholders, and develop a long-term plan for sustainable resource allocation. By implementing these recommendations, the Ministry can improve resource allocation and effectively support the teaching and implementation of the revised Biology curriculum.

### Keywords

Teachers, Experiences, Implementing, Biology, Revised Education Curriculum, Ompundja Circuit

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## 1. Introduction

Teachers play a pivotal role in curriculum implementation, and their experiences significantly influence the success of educational reforms (Andrews & Taylor, 2018). Examining teachers' experiences provides valuable insights into their perspectives, challenges, and strategies when implementing a revised curriculum (Albert, 2021). **By gaining a deeper understanding of how** teachers navigate changes and adapt their teaching practices to align with new requirements, policymakers and curriculum developers can make informed decisions to improve the curriculum and provide the necessary support to teachers.

Previous studies have explored teachers' experiences during the implementation of revised curricula across various subjects (Baker, 2019). These studies have shed light on the challenges faced by teachers, including the need to adapt instructional materials, address student needs, and integrate new pedagogical approaches (Baker, 2019). **To capture a comprehensive understanding** of teachers' experiences, a qualitative research approach is deemed suitable (Albert, 2021). Qualitative research allows for an in-depth exploration of participants' perspectives, offering a rich description of their experiences and enabling researchers to delve into the complexities and nuances of teachers' beliefs, challenges, and emotions during curriculum implementation (Albert, 2021; Andrews

& Taylor, 2018).

### 1.1. Statement of the Problem

The successful implementation of a revised education curriculum is a complex undertaking that often presents challenges and changes for teachers. To ensure the effectiveness of curriculum reforms and enhance the overall quality of education, it is crucial to understand teachers' experiences during the implementation process (Baker, 2019). This study focuses on the specific context of the Ompundja Circuit, where the Biology curriculum has undergone revisions, necessitating an investigation into teachers' experiences with its implementation.

In light of the above, this study aims to uncover the unique challenges and experiences of Biology teachers in the Ompundja Circuit as they implement the revised curriculum. To inform future curriculum reforms and assist teachers in their professional development, it is essential to understand the experiences teachers had during the implementation of the curriculum (Baker, 2019).

### 1.2. Theoretical Framework

This study is based on the Concerns-Based Adoption Model (CBAM). The Concerns-Based Adoption Model (CBAM offers a novel perspective on how individuals respond to and adapt to innovations and changes (Hall & Hord, 2019). The primary objective of this theory is to assist educators in describing, quantifying, explaining, and comprehending the transformation they undergo as they work towards implementing new curriculum content and pedagogical practices (Leedy & Ormrod, 2010).

According to the CBAM, educators experience concerns that need to be addressed before they can effectively implement a new curriculum and adapt to change (Hall & Hord, 2019). The CBAM emphasizes the crucial role of classroom educators in driving curriculum reform (Kashiimbi, 2016). It consists of three key components: Stage of Concern (SoC), Level of Use (LoU), and Innovation Configurations (IC). The Stage of Concerns model, developed by George, et al. (2016), focuses on teachers' reactions and anxieties when it comes to implementing change. The Level of Use represents how individuals behave as they encounter and employ a new curriculum, to improve outcomes through experience and proficiency (Kashiimbi, 2016). The final component, Innovation Configurations, specifies the new program or practice to be implemented in the classroom and identifies effective ways to support educators in their work with the revised curriculum.

Considering the significance of teachers' perceptions and experiences, the researchers have decided to adopt the CBAM theory as a guiding framework for investigating the perceptions of secondary school teachers toward the implementation of a revised Biology curriculum in the Ompundja Circuit of the Oshana Region in Namibia. This theoretical framework will help provide in-

sights into the concerns, behaviors, and necessary support required by teachers during the implementation process.

## **2. Literature Review**

### **2.1. Challenges Faced by Teachers in Implementing the Revised Biology Education Curriculum**

#### **2.1.1. Low Biology Teacher Staff Development and Training**

One of the fundamental issues that hinder the successful implementation of the Biology curriculum is the lack of adequate staff development opportunities. Neglecting to provide sufficient training and support to teachers leads to poor implementation (Chirimbana & Haimbangu, 2018). Teachers require re-education and sharing sessions with colleagues to develop or refine the competencies necessary to implement the revised Biology curriculum (Andrews & Taylor, 2018). Insufficient in-service education and training impede the effective implementation of new curricula (Naukushu & Haimbangu, 2021). Lack of hands-on training in the use of Biology teaching tools further hampers the teaching and learning process (Anderson & Elloumi, 2017). Thus, comprehensive and continuous professional development programs are essential for equipping teachers with the knowledge, skills, and attitudes needed to successfully implement the revised Biology curriculum.

#### **2.1.2. Lack of Teaching Competencies and Skills in Biology**

Teachers' competency in pedagogical approaches and content knowledge is crucial for the successful implementation of the Biology curriculum. Insufficient knowledge and skills hinder teachers' ability to utilize digital technology and integrate it into their Biology teaching. The study by Mertens (2019) indicated the inability to translate the Biology curriculum into pedagogical practice as one of the challenges that affect teachers' confidence. Additionally, Teachers' limited Biology proficiency and lack of ICT abilities pose significant obstacles to effective Biology teaching (Alderman, 2016). To address these challenges, teachers need support and training workshops to enhance their pedagogical skills and content knowledge in Biology. Thus, this study aimed to look into some of these challenges and see if they might have been the same as the ones experienced in the selected schools that took part in this study.

#### **2.1.3. Lack of Monitoring and Evaluation in the Implementation of the Biology Curriculum**

Monitoring and evaluation play a vital role in ensuring the successful implementation of the Biology curriculum. Ongoing collaboration between policy-makers and implementers is necessary (Anderson & Elloumi, 2017). A study by Andrews revealed that the lack of monitoring and evaluation processes and support services during curriculum implementation hinders teachers' performance and improvement (Andrews & Taylor, 2018). Additionally, Joel and Ruhan (2016) state that clear evaluation criteria for Biology teachers and effective

monitoring and evaluation structures are essential to assess teacher performance and identify areas for improvement in the teaching of the subject. Monitoring and evaluation also provide evidence for resource allocation decisions and help address challenges and replicate successes. Given the findings above, the study planned on exploring the findings of the current study to see if there is a trend in the challenges mentioned above and if the teachers from the selected schools are similarly not being monitored and evaluated during and after the implementation of the Biology curriculum.

#### **2.1.4. Insufficient Teaching Resources for Biology**

The availability of appropriate teaching resources is critical for effective Biology instruction. A lack of relevant textbooks, teaching aids, and digital resources can undermine the teaching and learning process (Joel & Ruhan, 2016). The absence of resources such as ICT tools and materials limits digital competence among students (Badugela, 2019). To ensure the successful implementation of the Biology curriculum, adequate provision of resources, including physical facilities, textbooks, teaching aids, and stationery, is necessary (Abramo et al., 2019). Given the findings from the studies above, the study planned on exploring if the selected schools are also faced with the challenges of teaching resources for instance laboratories and their equipment, and other resources for teaching Biology. The study was seeking to find a solution and make recommendations to ensure that the implementation of Biology and other similar subjects is not affected by the same or similar challenges in the future.

### **2.2. Conclusion**

The successful implementation of a revised education curriculum is crucial for achieving desired learning outcomes. However, teachers often encounter various challenges when implementing changes in the curriculum. This literature review aimed to Explore Teachers' Perspectives and Challenges in Implementing the Revised Biology Education Curriculum: Specifically, the literature focused on the following challenges: low Biology teacher staff development and training, lack of teaching competencies and skills in Biology, insufficient monitoring and evaluation in the implementation process, and a shortage of teaching resources for Biology.

## **3. Methodology**

### **3.1. Research Paradigm**

Research paradigms, as defined by Shajahan (2019), represent well-established practices within the academic community for conducting generally accepted types of studies. Creswell also noted that positivism and interpretivism are prominent theoretical frameworks that can serve as the basis for developing new research paradigms. In this particular study, an interpretivism methodology was employed due to its suitability. This choice was influenced by the need to interpret the various components of the study and the fact that interpretivism re-

search offers multiple perspectives to the researcher, aligning with the interpretivism paradigm (Baker, 2019).

### 3.2. Research Approach

To determine the significance and meaning of seemingly contradictory attitudes, actions, and feelings, Albert (2021) claims that qualitative research entails observing and analyzing human behavior and experience. To give a more thorough understanding of the findings, this study employed a qualitative research approach. The researchers chose this approach to better explain the outcomes and generate an in-depth description of the participants' perspectives, beliefs, and knowledge, as well as to deduce the meanings behind their behaviors. This qualitative research approach is in line with the work of Andrews and Taylor (2018), who emphasize the importance of gaining a comprehensive understanding of the challenges related to perceptions, administration, and evaluation and providing additional contextual information for explaining nuanced problems (Mohammed, 2019).

### 3.3. Research Design

The term research design refers to the plan for collecting, measuring, and analyzing data (Albert, 2021). It serves as the overarching strategy that ensures the various components of the study work together to address the research question. Descriptive case studies focus on specific occurrences and examine them in great depth, framing initial hypotheses and research objectives using clear and specific language. It includes expert commentary and a concise yet comprehensive description of the factual background, implementation outcomes, lessons learned, and connections to relevant theories, concepts, policies, and tools (Albert, 2021). Therefore, the researcher utilized a descriptive case study design to capture in-depth insights into the participants' views on the implementation of the revised biology Curriculum.

### 3.4. Population

According to Johnson and Christensen (2020), the population refers to the large group to which a researcher intends to generalize the results obtained from the sample. It represents the total group of interests from which information needs to be ascertained. In this study, the population consisted of all schools offering Biology and all Secondary Biology teachers in the Ompundja circuit. Ompundja has eight (8) schools of which two (2) are combined schools, and six (6) are primary schools. The schools are situated in and around Ongwediva and Oshakati towns in the Northern part of Namibia in the Oshana region.

### 3.5. Sample and Sampling Strategies

Sampling, as described by Johnson and Christensen (2020), is the process of selecting portions of a population to represent the entire population. There are two main types of sampling strategies: probability and non-probability sampling strategies (Baker, 2019). In probability sampling, all study participants have an

equal chance of being selected, while in non-probability sampling, participants do not have equal chances of being included (Braun & Clarke, 2017). The purposive sampling method was used to select participants for this study. A sample of fifteen Biology teachers was purposively selected from five selected secondary schools in Ompundja Circuit to participate in this study. The selection of schools was based on their distance from the place of the researcher. Teachers, on the other hand, were selected on the basis of their availability, experience, subject taught, and positions they hold at their school. The purposive sampling strategy was used because this strategy recruits participants who can provide detailed information about the phenomenon under investigation (Braun & Clarke, 2017). Purposive sampling helps the researcher to make the most out of a small population of interest and arrive at valuable research outcomes. Additionally, purposive sampling allows the researcher to gather qualitative responses, which leads to better insights and more precise research results (Alderman, 2016).

#### 4. Presentation and Discussion of Data

Data presentation involves the utilization of various graphical representations to visually depict the relationship between multiple data sets, facilitating decision-making based on the presented information. To enhance the researcher's interpretations and analyses in this study, relevant literature was consulted as it provides supporting evidence for the discussed topics and concepts (Baker, 2019). In this study, the process of identifying themes in the data involved steps such as data familiarization, data coding, theme development, theme evaluation, definition and identification of themes, and ultimately, organizing and presenting the themes. The transcribed responses from the participants were used to support and substantiate the identified themes.

Data collected from interviews was presented through discussions to showcase the diverse perspectives shared by the participants. These discussions encompass the participants' experiences in teaching and learning the newly revised Biology curriculum, their classroom roles, and the strategies that can be employed to enhance the teaching and learning of the revised curriculum. The findings derived from the identified themes in this study are now presented. Since a qualitative methodology was employed, the data underwent thematic analysis, and the outcomes were organized into themes and sub-themes aligned with the research objectives. The individual in-depth processes and face-to-face interviews were recorded and subsequently analyzed following the prescribed procedures for qualitative data analysis (Blachford, 2020).

The thematic analysis serves as the means to identify and analyze patterns of meaning within qualitative data (Chirimbana et al., 2020). To support the identified themes and sub-themes, relevant literature and the researcher's explanations and analyses were integrated (Ader, 2018). Sequential processes, including data familiarization, data coding, identification and development of themes, reviewing themes, defining and naming themes, and finally documenting the themes,

were undertaken to ensure proper recognition and consideration of the themes. The information was then organized into themes, with recorded comments from the participants included as supporting evidence. **Table 1** presents the themes and sub-themes derived from the analyzed and transcribed data.

### Sub-theme 1.1: Biographical information of the participants

This section provides biographies of the study's participants, offering the reader a comprehensive understanding of their characteristics and perspectives. A total of fifteen Biology teachers were selected as participants from the five secondary schools involved in the study. Each participant is assigned a unique numerical identifier ranging from 1 to 15. (**Table 2**)

**Table 1.** Table of themes.

THEME	SUB-THEMES
<b>Theme 1:</b> The teachers' experiences when implementing the revised education curriculum in Ompundja Circuit	<b>Sub-theme 1.1:</b> Biographical Data Of the Study Participants
	<b>Sub-theme 1.2:</b> Inadequate Resources
	<b>Sub-theme 1.3:</b> <u>Medium of instruction</u> for Biology: a challenge
	<b>Sub-theme 1.4:</b> Learner absconding in biology lessons
	<b>Sub-theme 1.5:</b> Inadequate time for content coverage
	<b>Sub-theme 1.6:</b> Overcrowded classes
	<b>Sub-theme 1.7:</b> Lack of Parental Involvement

**Table 2.** Biographical data of the study participants.

Participants	Position	Area of specialization + subjects taught	Gender	Number of years in teaching profession	Highest qualifications
1	Teacher	<b>Biology and Physics:</b> Biology	Male	10 yrs, 3 months	Degree
2	Teacher	<b>Environmental education + Natural sciences:</b> Biology and Life Science	Male	30 yrs, 2 months	Degree
3	Teacher	<b>Biology and Mathematics:</b> Biology and Mathematics	Female	16 yrs, 3 months	Degree
4	Teacher	<b>Biology and Physical Education:</b> Biology and Oshindonga	Male	1 yr, 3 months	Degree
5	Teacher	<b>Integrated Natural Science:</b> Biology and Life Science	Female	13 yrs, 4 months	Degree
6	Teacher	<b>Biology and English:</b> Biology and English	Male	16 yrs, 4 months	Degree
7	Teacher	<b>Biology and Math:</b> Biology and Math	Male	15 yrs, 2 months	Degree
8	Teacher	<b>Biology and Home Economics:</b> Biology	Female	2 yrs, 3 months	Degree
9	Teacher	<b>Biology and English:</b> Biology and English	Female	16 yrs, 1 month	Degree
10	Teacher	<b>Biology and Mathematics:</b> Biology and Mathematics	Female	11 yrs, 1 month	Degree
11	Teachers	<b>Biology and Home Economics:</b> Biology and Home Economics	Female	10 yrs, 5 months	Degree
12	Teacher	<b>Biology and English:</b> Biology and English	Male	14 yrs, 5 months	Degree
13	Teacher	<b>Biology and Physics:</b> Biology	Female	9 yrs, 2 months	Degree
14	Teacher	<b>Biology and English:</b> Biology	Male	6 yrs, 3 months	Degree
15	Teacher	<b>Biology and Mathematics:</b> Biology and Mathematics	Male	8 yrs, 5 months	Degree



Based on the aforementioned data, it is evident that all participants possessed academic qualifications. Their teaching experience ranged from one to thirty years, with ten teachers having more than ten years of experience and five teachers having less than ten years. The research included a total of ten classroom teachers and five departmental heads, all of whom were engaged in teaching Biology in different Secondary schools. The data presented in the table highlights that all participants interviewed were qualified Biology teachers in the Secondary phase, with a minimum of one year of teaching experience, indicating that experienced individuals were involved in the study.

### **Sub-theme 1.2: Inadequate Resources**

The effective operation of educational institutions, such as schools, necessitates the provision of sufficient resources and equipment by the Ministry of Education, Arts, and Culture (Brodie, 2019). These resources are crucial for simplifying the teaching and learning processes and improving students' performance, particularly in practical subjects like Biology. Insufficient resources and equipment provided by the ministry can adversely affect the teaching and learning process. Abramo et al. (2019) have noted that a lack of equipment, coupled with large class sizes, creates difficulties in conducting practical lessons, while parental involvement significantly impacts students' academic performance. Regardless of ethnic background, research has demonstrated that parental monitoring contributes to higher academic achievement as parental attention helps students stay focused at school (Agailar, 2020).

Participants from the five selected schools in Ompundja Circuit, Oshana Region, reported facing numerous challenges when implementing the newly revised Biology curriculum. These challenges were related to inadequate resources. The following quotations from the participants support this assertion:

*"We do not have enough. Biology textbooks for our students to study and conduct further research, except for the notes that we provide"* (Teacher 9).

Teacher 5 echoed this sentiment by stating, *"We lack sufficient Biology textbooks for the revised curriculum in our school."*

Teacher 12 also supported this claim, saying, *"Our classrooms are not large enough to accommodate the number of students, so class size is a significant concern at this school."*

The availability of adequate resources, such as textbooks, science laboratories, and scientific equipment, is essential for the teaching and learning of Biology in schools, both for theoretical purposes and practical applications. Without these resources, the teaching and learning process is hindered, directly impacting students' performance in Biology. Resources play a crucial role in providing learning experiences and facilitating interaction between students and teachers during the teaching and learning process. Additionally, they assist students in learning and gaining valuable experiences that cater to diverse learning needs (Brodie, 2019). The findings presented above align with the earlier research conducted by Ngema (2016) in South Africa, which emphasized the need for government support, particularly financial assistance, to create conducive teaching and

learning environments in rural schools and improve students' performance. The availability of resources, particularly textbooks, is crucial for the success of Biology education. Students must have access to textbooks to engage in self-directed activities and self-learning (Carey, 2014).

Resource provision is a vital component of any functional educational environment (Davis, 2018). In the present study, schools encountered challenges regarding textbook provision. Most participants in this study expressed a lack of resources in their schools. The following quotation from the participants supports this claim:

*"We only have textbooks available for the Biology teacher for now"* (Teacher 2).

Teacher 1 further supported this observation by stating, *"The lack of textbooks makes it difficult for students to complete their homework since they have to share a single book."*

These findings are consistent with the research conducted by Becta and Abbott (2019), who noted that students in disadvantaged settings lack the necessary resources to enhance their learning at home, which ultimately hampers their knowledge acquisition. As a result, students may lose interest in their schoolwork and perform poorly (Leedy & Ormrod, 2010). Furthermore, the Ministry of Education, Arts, and Culture Namibia (MOEAC) (2020) acknowledged that poor infrastructure, particularly in northern regions with limited school buildings despite a high student population, negatively impacts curriculum implementation.

Moreover, Biology education involves practical work. It encompasses both theoretical and practical aspects. According to the findings of this study of the five selected schools, only one school in Ompundja Circuit lacked sufficient Biology textbooks; however, basic necessities such as running water and fire extinguishers were available. Other schools in the circuit did not have dedicated Biology rooms for Biology lessons. Teacher 8 expressed this concern, stating, *"The school lacks a dedicated Biology room, and we also do not have a teacher capable of teaching up to grade 11, as our Biology teacher only holds an undergraduate degree"* (Teacher 8).

Teacher 7 similarly mentioned, *"We lack learning materials, calculators, and textbooks required for Biology teaching and learning"* (Teacher 7). Teacher 10 also supported these observations, stating, *"The school urgently needs new curriculum textbooks, as most of the previously provided books are outdated."*

These findings align with Chirimana et al. (2020), who stated that material resources significantly impact students' achievement by facilitating the learning of abstract concepts and discouraging rote memorization. Additionally, (Anderson & Elloumi, 2017) highlighted that the lack of resources in the teaching and learning process hinders the successful implementation of the Biology curriculum in schools.

### **Sub-theme 1.3: Medium of instruction for Biology as a challenge**

The vocabulary of science and Biology are identified as different languages

(Brooke, 2013). The learners in the Ompundja Circuit have a challenge with these languages because they prefer being taught in their own language (Oshiwambo). Biology is a subject that requires one to grasp the concepts and be able to communicate them in writing. It also requires one to analyze data from diagrams and communicate them in words, and to know the theories and be able to apply them, therefore, a lack of proficiency in English in order to communicate Biology also results in the learners being unable to communicate their ideas (Anderson & Elloumi, 2017). These were the responses from the participants: *“Most learners are struggling with the language an English teacher uses, I encountered learners trying to explain to one another for them to understand the topic in their mother tongue, and hence indeed I do hereby proclaim that there is indeed a language barrier.”* On this aspect, Teacher 8 had this to say, *“Marking English I encountered grammatical errors of which sometimes the answer can be correct except the English used.”* The issue of language used was also supported by Teacher 3 when she said that, *“English is a problem, especially in rural areas like Ompundja, the pass rate in Oshikwanyama can be 100%, but with English is another story.”* Teacher 6 echoed the same view as he said: *“A learner may have understood the content in the class, but when they get a similar question or scenario in the test with different words used, they are likely to fail, not because they do not know how to calculate or approach the question, but because of the different words that were used.”*

Based on this finding, it can be argued that poor curriculum implementation in Biology, include the medium of instruction used to communicate Biology content, use of simplified English as a medium of instruction, or giving a special focus to English which is the mode of transport used to transmit the newly revised Biology curriculum

The findings concur with the findings of Carey (2014) who indicated that the medium of instruction may alter the learner’s comprehension of different subjects and hence this language barrier is considered as one of the challenges affecting curriculum implementation in the teaching and learning of Biology in Secondary schools. The findings also support the ideas of Joel & Ruhan (2016) who asserted that “The home language of a learner and the medium of instruction at schools affect learner performance in a subject. When learners are unable to interpret a question in the examination, the chance of learners providing the correct explanation is not good.

#### **Sub-theme 1.4: Learner absconding in Biology lessons**

Lesson absconding is an issue that is widely discussed among academicians worldwide, particularly those who are involved in the education field such as schools and higher education institutions (Agailar, 2020). Abscondences is a habit of failing to present himself or herself frequently in the program or event without a reasonable excuse and an absentee is used to describe somebody who is not there to do a particular task in person (Carey, 2014).

During the abscondences date a test or continuous activities may be given. These were the participants’ responses: *“The high absenteeism rate among our*

*learners contribute to poor curriculum implementation, particularly in Biology with the new curriculum content that need an ample time to be covered, missing classes means missing those competencies and hence the failure of such competencies covered in their absence,” (Teacher 5). This was supported by Teacher 1 when he said that, “I have encountered about three to four learners who have the habit of missing classes and only get serious during the exams and hence it leads to poor performance of these learners”. On this note, teacher 3 had this to say, “The high rate of abscondences can also affect learners, in fact, there are several parents who are making their children to miss school to do house chores, some can miss up to three days consecutively.”*

These findings seem to reveal that successful students in their academic performance were based on their attendance at classes or lectures. Absence from classes among learners nowadays is a global issue that does not only occur in African countries and in Asian countries like Malaysia (Gilead et al., 2016). Various research on absenteeism only focused on abscondences but lack on the relationship between students' class attendance and academic performance (Abramo et al., 2019). The findings seem to suggest that learner abscondence affects curriculum implementation in Ompundja Circuit. Apart from high school dropout rate and teenage pregnancies, some of the learners can only attend three days of a week or less and teachers will not be able to attend to all of them. These findings uphold, validate and support the findings of a Malaysian scholar Carey (2014) who indicated that learners who absent themselves from school do not perform in schools. Carey further revealed that there was a negative correlation between absence from class with the academic achievement ( $r = -0.611$ ). Regression model was developed to determine the impact of class absenteeism on learners' academic performance. The result showed that the most important finding was that once the students do not attend classes, there will be a reduction of 2.11% in the final exam scores of the learners. The findings also concur with the findings of a South African scholar, Ngema (2016) who asserted that absenteeism as a common contributing factor to poor performance particularly in developing countries in Southern Africa.

#### **Sub-theme 1.5: Inadequate time for content coverage**

Changing the curriculum was one of the factors identified by scholars like Ngema (2016) in South Africa, (Huizinga et al., 2019) in Mozambique, Blachford, 2020) in Kenya. According to Ngema (2016) teachers have to cover the required content within a short period of time due to curriculum change. The following citation from the participants supports this claim: “*As Biology teachers, we try by all means to quickly teach just to make sure that we finish the syllabus and make a quick revision before the exams as the learners will be assessed across the whole syllabus and this is affecting our learners' comprehension of Biology and hence they will not be able to master all the competencies,” (Teacher 4). This was also echoed by teacher 7 when he said that, “We are talking about grade 10 content moved to grade 9 as the new curriculum. This is one of the challenges because it requires different teaching methods, and most of our*

*teachers were trained under the old curriculum. They aren't trained to teach the new curriculum at all". On this matter, Teacher 11 had this to say, "We have a lot to deliver to the learners within each term due to the change in the curriculum and the term is very short."*

The results show that the content is a lot to cover within the required terms, hence time to master every competency is drastically reduced. This means that learners may not be able to master everything due to limited time. The Biology teachers interviewed also confirmed that due to the lack of resources already plus the change in the curriculum, it becomes a challenge which in their opinions reduces the expected performance in Biology.

These findings concur with the earlier findings by Brodie (2019) who indicated that any curriculum changes should also involve changes in the teaching and learning methods in order to cope with the newly introduced or transformed content. The study also revealed that many teachers have little mastery of subject matters required by changes in the school curriculum, particularly those who started to implement the changes for the first time. Moreover, the study indicated that many changes in the school curriculum particularly in Science and Biology subjects do not consider the availability of teaching and learning materials and thus, it recommends that educational practitioners and authorities should not be drawn into the changes of the curriculum before investigating the types of teaching and learning methods to be used and the science facilities like laboratories filled with all needed equipment and other teaching and learning materials. The findings also concur with (Huizinga et al., 2019) who stated that the Biology curriculum, which incorporates both statistics and mechanics, and presents learners with a large amount of work to assimilate and accommodate.

#### **Sub-theme 1.6: Overclouded classes**

"Practical and theory lessons in large classes, together with limited resources, become very difficult and more time was spent on disciplining learners rather than teaching and learning," (Huizinga et al., 2019). Classes' sizes differ according to the number of learners and also on the type of building infrastructure. When the class size is too large, learners tend to lose focus on the task because instruction focuses on the class as a whole rather than on individual learners (Blachford, 2020).

The teacher tends to have difficulty in dealing with such learners as well as completing the lesson for the day. Thus, smaller classes would allow for the Biology teachers to give learners individual attention. On this matter, this is what teacher 13 had to say, "*Larger classes are difficult to control hence to master the content is automatically hindered.*" These sentiments were supported by Teacher 11 when he said that, "*We always have a large number of learners per class*". Teacher 15 also supported this when he said that: "*It's not easy to control a high number of learners and give them enough attention, especially in Biology. There are different learners from different home backgrounds, with different discipline styles*".

*Teacher 9 further added that “With a large number of learners in a class as well as many class groups to teach, it becomes difficult for the teacher to mark the work in a reasonable time and give them feedback.”*

The findings seem to reveal that the operation of any school requires the availability of sufficient classes to accommodate learners, if these are not available the operation and service delivery will immensely be affected. Many of the grade 11 classes in Ompundja Circuit are overcrowded and the teaching and learning environment of the schools visited is thus uncondusive. The classes are overcrowded, with each class housing about 42 to 48 learners. Some learners were disruptive in class and teachers spent more time disciplining learners instead of teaching, this supports the findings of (Bort, 2015) that with large classes the attention of learners who sit at the back of the class drifts as the lesson progresses. The findings above support and uphold the findings of research conducted by Braun & Clarke, (2017) who showed that as class size decreases, achievement increases and significant benefits begin to emerge as the class size falls below 20 students. A study by Chirimbana, Miranda, & Nakashole (2020) study showed that test scores were lower in larger classes. With this, smaller classes seemed to provide a more successful learning environment. In support of this, Bort (2015) states that a lack of adequate classrooms and enough teachers leads to overcrowded classes. According to the Ministry of Education, Arts and Culture (2016), in Ompundja Circuit alone about 38 teaching posts have been removed since 2018 and hence the evidence of overcrowded classes.

#### **Sub-theme 1.7: Parental Involvement**

Parental involvement plays a vital role in a learner’s academic performance Bort (2015). Irrespective of ethnicity, research has shown that parental monitoring leads to higher academic achievement due to the fact that parental attention helps learners remain focused at school (Leedy & Ormrod, 2010). Based on the results of his studies (Badugela, 2019) found that “parental involvement is positively related to expectations and importance of schooling” and by having a positive attitude towards education, a learner is more likely to excel.

The interview participants indicated that although some parents are willing to help their children at home, it’s a barrier since they themselves had no formal education and hence some do not even know what Biology is (Gilead et al., 2016). Approximately 90% of learners are unable to get assistance from their parents in Biology (Bort, 2015). They defined parental involvement as limited because most of the parents are uneducated, cannot read and write, and do not even understand their role in their children’s education. On this issue, this is what teacher 14 had to say, “*We have peaceful and good Parents who attend every parent’s meeting however they do not understand their role in their children’s learning since most of them are uneducated and hence they cannot help their children in doing their school work and some still believe in their traditional house chores, thus, they do not give time for their children to study at home even during the exam*”. This was also synchronized by teacher 7 when he said that, “*Most of the parents did not attend school, thus most of our learners*

*only learn from other learners as they cannot be assisted at home, after school they have to finish the house chores and they do not get time to study. On this note, Teacher 1 also hinted that “Some of our learners live with their grandparents who were taught in Afrikaans during the colonial time, thus they do not understand Biology to help the learners at home”.*

The findings support the findings of Bort (2015) that the majority of the parents are uneducated and unfamiliar with the syllabus and Biology as the medium of instruction. It is therefore difficult for them to participate in a way that is required by the teachers. However, being involved in their children’s learning is considered crucial and influential in the learner’s performance.

## 5. Conclusion

The findings from the primary research shed light on the teachers’ experiences when implementing the Biology revised education curriculum in Ompundja Circuit, specifically in Namibian Secondary schools. The participants of the study revealed several challenges and obstacles that hindered the effective implementation of the curriculum in the selected secondary schools.

One prominent issue highlighted by the participants was the lack of necessary tools and resources essential for implementing the revised Biology curriculum. This included a shortage of textbooks, inadequate library space, and a lack of dedicated Biology study rooms. The absence of these resources posed significant difficulties for the teachers, as they were unable to provide learners with the required learning materials and conducive environments for studying Biology effectively. Moreover, the study identified various obstacles that impeded the successful implementation of the new Biology curriculum. The participants highlighted a lack of motivation among teachers as a contributing factor to the poor implementation of the revised curriculum. Factors such as heavy workloads, limited professional development opportunities, and a lack of support from educational authorities appeared to diminish teachers’ motivation, resulting in the suboptimal implementation of the curriculum. Additionally, overcrowded classes were identified as a significant hindrance to effective curriculum implementation. The large class sizes made it difficult for teachers to provide individualized attention to learners, resulting in compromised learning experiences and decreased student engagement.

Furthermore, the absence of educational infrastructure, such as classroom buildings, was a notable obstacle. This lack of infrastructure was attributed to a shortage of funding, which further hampered the implementation of the Biology curriculum. Insufficient classroom space affected the overall learning environment and limited teachers’ ability to deliver the curriculum effectively. Lastly, the study revealed that parents’ lack of involvement also played a role in the poor implementation of the revised Biology curriculum. Limited parental engagement and support hindered learners’ motivation and success in the subject, further exacerbating the challenges faced by teachers. Addressing these issues is crucial to improving the implementation of the Biology curriculum and en-

hancing learners' learning experiences in the region.

## 6. Recommendations for Improvement

1) Based on the findings of the study, the following recommendations are proposed for improving the implementation of the Biology revised education curriculum in Ompundja Circuit:

- School Management: a) Organize science contests, science fairs, and job fairs to motivate students and cultivate their interest in Biology. b) Plan fundraising events to raise funds specifically for Biology programs and resources in classrooms. c) Increase parental participation by scheduling social evenings and inviting parents to school events like end-of-year celebrations. d. Establish awards and recognition systems to inspire both teachers and students.

- Ministry of Education, Arts, and Culture: a. Develop policies that ensure the availability of essential materials like books, posters, and library facilities in all schools, including both urban and rural areas, with fair distribution. b. Implement policies to assess and monitor the new curriculum, ensuring teachers receive proper preparation through workshops and adequate time allocation. c. Provide adequate infrastructure for schools, and alleviate overcrowding of classrooms.

2) Recommendations for Further Research: Considering the limited scope of the study, further research is recommended to broaden the understanding of curriculum implementation in Namibian schools.

- Conduct similar studies in other subjects and different regions in Namibia to compare the experiences of teachers across various schools and regions.

- Explore the experiences of students and parents regarding the implementation of the revised Biology curriculum to gain a comprehensive understanding of the challenges and opportunities from multiple perspectives.

- Examine the impact of professional development programs and workshops on teachers' preparedness and effectiveness in delivering the revised curriculum.

By addressing these research gaps, policymakers and educational stakeholders can gain valuable insights to inform future interventions and improvements in curriculum implementation across Namibian schools.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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