

**A STUDY OF CODE SWITCHING IN JUNIOR SECONDARY PHYSICAL  
SCIENCE CLASSROOMS IN SELECTED SCHOOLS IN THE OSHANA  
EDUCATION REGION.**

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## APPROVAL PAGE

This research has been examined and is approved as meeting the required standards for partial fulfillment of the requirements of the degree of Master of Education.

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This thesis is dedicated to my three clans/families: Aakwanambwa, Aakwananime nOvakwamhalanga. I could not have made it without their love, understanding and encouragement.

## **ABSTRACT**

Namibia has a small population of about 2.1 million but about 30 languages are spoken. English was chosen as the official language although it is only a home language to about 1.9% of the population. Moreover, English was also selected to be the language of instruction from Grade 4 up to the tertiary level. Studies indicate that English proficiency is poor amongst most Namibian teachers as well as learners and that teachers sometimes resort to mixing English with mother tongue during instruction.

This study was intended to determine the prevalence of code switching in the Junior Secondary Physical Science classrooms in the Oshana Education Region. This study also sought to find out the reasons for the occurrence of code switching in the Physical Science classrooms, the impact that code switching has on the teaching and learning of Physical Science as well as to explore the teachers' perception of code switching.

The study followed a mixed research design approach, where a sample of 22 teachers was drawn from 10 schools of the population of the Junior Secondary Physical Science teachers in Oshana Education Region. In an attempt to get a representative sample of the population, stratified random sampling method was employed for this study. Triangulation was used in the study by incorporating quantitative and qualitative data obtained from lesson observations, questionnaires as well as by conducting structured interviews to cross-validate the research findings of the study.

The findings of this study revealed that code switching was prevalent in the Oshana Education Region Junior Secondary Physical Science classrooms. The teachers were found to be using code switching as a strategy to make their learners understand better and to overcome the learners' and teachers' English language proficiency in their classrooms. The findings also established that some teachers avoided code switching as a preventative measure for their learners not to code switch in the examinations as it would contribute to the learners performing poorly. It was also found that some teachers did not code switch because the subject and language policies did not allow it.

The findings pointed out a number of advantages of code switching indicating that it is beneficial to the teaching and learning of Physical Science. Some disadvantages of code switching were identified, which pointed out that it can hamper the learners' performance in the examinations as well as their perfection of the English language.

The findings further revealed that the Junior Secondary Physical Science teachers in the Oshana Education Region were in a dilemma; 60% of the respondents indicated that code switching should be allowed. The respondents expressed mixed feelings on how code switching impacted the teaching and learning of Physical Science. About 9% of the respondents stated that the Namibian Language Policy forced them to use English as the language of instruction and they would like to have the native languages used as the media of instruction.

This research has recommended that the Ministry of Education should take cognizance of these findings and formulate guidelines on the use of code switching in schools. In addition, there is a



need to initiate and fund research activities on the code switching phenomenon in Namibia so as to determine and emulate the best practices from other multilingual countries.

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## ACRONYMS

<b>CIA</b> -	Central Intelligence Agency
<b>NPC</b> -	National Planning Commission
<b>NaBiD</b> -	Namibia Biodiversity Database
<b>MoE</b> -	Ministry of Education
<b>MBESC</b> -	Ministry of Basic Education, Sport and Culture
<b>MEC</b> -	Ministry of Education and Culture
<b>JSC</b> -	Junior Secondary Certificate
<b>PS</b> -	Permanent Secretary
<b>PGSC</b> -	Postgraduate Studies Committee
<b>UNESCO</b> -	United Nations Educational Scientific and Cultural Organization
<b>UNAM</b> -	University of Namibia

## **CHAPTER 1: INTRODUCTION**

### **1.1 Background Information**

Namibia has a relatively small population; of about 2.1 million people (Central Intelligence Agency (CIA), 2011). The Namibian people speak a large number of languages (about 30) and have adopted English as the sole official language, which is a home language for only 1.9% of the population (Namibia Biodiversity Database (NaBiD), n.d). This is a clear indication that English is a second language for the majority of the Namibian people. However, since English is not yet a lingua franca in Namibia, the teaching of English has been allotted a high priority by the Ministry of Education (MoE) due to the role that schools are expected to play in establishing the use of English as the official language (Ministry of Education and Culture (MEC), 2000).

The Ministry of Education and Culture's (MEC, 2000) Language Policy states that the medium of instruction in Namibian schools would be English in all subjects excluding languages from Grade four through to the tertiary level. In the case of Grades one to three, the home language, any other national language can be the medium of instruction, with English as a subject. Some of the goals of this Language Policy are: 1) For the seven-year primary education phase to enable learners to acquire reasonable competence in English and to be prepared for the English medium of instruction throughout the secondary phase. 2) For the education to promote the language and cultural identity of learners through the use of mother tongue as the medium of instruction in Grades 1-3 and the teaching of mother tongue as a subject throughout formal education.

However, it seems as if the Language Policy was misunderstood as the extract from the discussion document of the Namibian Language Policy points out:

...it was not explicitly outlined how national languages (or mother tongues) should be used in schools. There were discrepancies in the implementation of the Language Policy from region to region, as policy implementers, due to misinterpretation and manipulation mainly preferred teaching through English rather than through the mother tongue. Formerly disadvantaged learners were further marginalised in this process, as non-English speaking teachers were expected to teach through the medium of English (Ministry of Basic Education, Sport and Culture (MBESC), 2003, p.2).

Although the policy mentions that national languages will continue to be taught as subjects throughout the school system, it does not mention anything about these national languages being used simultaneously with English in the subjects other than the language subjects. In other words, the national Language Policy does not directly address code-switching despite the fact that the majority of the Namibian population are not first language speakers of English.

Wolfaardt (2005) points out that there is a big problem with the English language proficiency of most teachers in Namibia and as a result learners who are taught by such teachers will not have the necessary foundation on which to build their English language skills. She, further, adds that teachers in schools make use of code switching to ensure meaningful learning takes place especially in monolingual classes comprising of learners who have come to school for the first time and are confronted with English. Other studies (Mouton, 2007; Brock-Utne, 2001; Holmarsdottir, 2000) also point out that the English proficiency of the teachers in Namibian schools is poor.

The Junior Secondary Certificate (JSC) examiners' reports from the Ministry of Education (MoE) (2005; 2006; 2007; 2008; 2009) have indicated that the learners' poor English practices such as incorrect use of terminology, incorrect spelling of key words, writing explanations that are not concise and to the point, failing to understand and responding incorrectly to the action

verbs have badly affected their performance. These reports also reveal that code switching is a common practice amongst the learners in Namibia. It is recommended that learners need to be reminded that they should answer only through the medium of English (MoE, 2008; 2009). “Switching to other languages should be avoided at all times” (MoE, 2009, p.182).

An interesting comparison of Grade 10 examination results was made by Wolfaardt (2005) and it clearly indicates that the average scores for first language subjects such as Oshindonga, Oshikwanyama, Otjiherero, Rukwangali and Silozi were relatively higher than the average scores for English as a second language and other content subjects taught through the English medium.

The reason why the averages for the home languages are so high can be attributed to the fact that candidates are instructed in a language they know best and feel comfortable with. This strengthens the point that candidates will do so much better when instructed in the language they know best. Can one of the reasons for the poor performance in the other subjects be that English is used as a medium of instruction? (Wolfaardt, 2005, p.2361).

Mouton (2007) carried out a study to elicit the views of upper primary teachers in the Khomas education region concerning the prevalence of code-switching during teaching and learning, the reasons for the use of code-switching and the influence code-switching has on the acquisition of the English language. She found that code-switching was widespread within the Khomas Education Region and that the learners in this region had difficulties in understanding terminologies and concepts in the subjects taught through the medium of English. She recommended that similar studies should be conducted in other education regions in Namibia. This study is partly a response to Mouton’s recommendation.

## **1.2 Theoretical framework**

In this section the theory on which the study is based is briefly discussed. The constructivism theory was used to explain how learners construct knowledge from what they are taught.

The constructivism theory of learning was used for this study to explain how learners made sense of the Physical Science subject matter that was presented to them. As a learning theory, constructivism emphasizes the idea that learners develop their own understandings that make sense to them and that they do not simply receive knowledge from an outside source (Schunk, 2000). Language is not only crucial to learning, but it is also crucial to the process of thinking because people think, rationalise and make sense out of events through language (Davey and Goodwin-Davey, 1998). The researcher was interested in studying how the participants handled the language used in their classrooms, particularly the code switching phenomenon.

According to Duit and Treagust (1995), constructivism does not deny a reality outside an individual, but rather claims that in order to understand this reality the learner needs to construct or create his or her own knowledge on the basis of the knowledge that he/she already has. This study undertook to gain some insight into how the respondents handle code switching to facilitate meaningful constructs of Physical Science by their learners.

Lee (2005) recommends that learners, irrespective of their backgrounds should be provided with academically learning opportunities that let them explore scientific marvels and construct scientific meanings based on their own linguistic and cultural experiences. Learning science with understanding may, therefore, be enhanced by taking cognisance of the learners' languages and culture by providing them with some local examples as well as by relating to some of the

scientific concepts in the learners' languages. In this way, science would not be too abstract for the learners and they would as a result be able to construct meaning from what they learn in the Physical Science classrooms.

### **1.3 Statement of the problem**

The examiners' reports for the national JSC examinations have indicated that the learners' poor proficiency in English has been adversely affecting their performance in Physical Science (MoE, 2005; 2006; 2007; 2008; 2009). These reports have also indicated that these learners answer some questions in languages other than English (i.e. they code switch when they are writing examinations) when they are fully aware of the medium through which they are supposed to answer.

Another setback is the poor proficiency in English of the teachers which in turn is likely to affect their ability to communicate effectively with their learners (Brock-Utne, 2001; Holmarsdottir, 2000 Mouton, 2007; Wolfaardt, 2005). The teachers' vocabulary, pronunciation, inflection and general command of the English language and their confidence in speaking and addressing the learners are at the core of the language use in the classroom. Consequently, the teachers' proficiency would in the end affect the teaching and learning of Physical Science as it is taught through English as a medium of instruction.

This study, therefore, sought to find out the extent to which code switching is used in the Junior Secondary Physical Science classrooms, the reasons for code switching as well as the advantages and disadvantages of code switching. The study further sought to investigate the impact that code

switching has on the teaching and learning of Junior Secondary Physical Science in the Oshana Education Region and the teachers' perception towards code-switching in their classrooms.

#### **1.4 Questions of the study**

The study sought to find answers to the following questions:

1. What is the prevalence of code switching in the Junior Secondary Physical Science in the Oshana Education Region?
2. What are the reasons for the Junior Secondary Physical Science teachers in the Oshana Education Region to be code switching?
3. What are the advantages and disadvantages of code switching?
4. What is the impact of code switching on the teaching and learning of Junior Secondary Physical Science?
5. What perceptions do the Junior Secondary Physical Science teachers in the Oshana Education Region have towards code switching in their classrooms?

#### **1.5 Significance of the study**

In this study, the teachers' use of English language was considered to have an influence on the teaching and learning of the Physical Science content. Hence, studying how the Physical Science teachers perceived the effects of code switching in their classrooms was deemed essential as it could transform the way their peers viewed code switching. The findings of this study might provide the Physical Science teachers with the upside and the downside of code switching, which might help them to effectively deal with code switching in their classrooms.

The policy makers such as those that are on the Language Policy committees and those that are responsible for revising the syllabus might use the findings of this study to consider putting guidelines in place that address the issue of code-switching in Physical Science classrooms. In addition, all stakeholders in education such as parents and learners might also find the results useful in considering whether or not they support the use of code-switching in Junior Secondary Physical Science classrooms. Furthermore, the study might be of use to the future researchers on the concept of code switching or in related fields as there are few studies done on the subject of code switching in Namibia.

### **1.6 Limitations**

One of the possible limitations of this study was that the respondents might not have answered the questions in the interviews and questionnaires truthfully. The researcher acknowledged that the respondents might have answered the questions in order to appear most normal or most socially desirable rather than responding honestly which could have affected the accuracy of the research findings (McMillan and Schumacher, 2006).

Similarly, another possible limitation could have been that during observations of the Physical Science lessons, the teachers and learners might not have carried on with their lessons as naturally as they usually do, knowing that someone was observing what they were doing. To overcome these, the researcher assured the participants about the anonymity and confidentiality of the research findings. Furthermore, the researcher made efforts to establish a close relationship with the participants to ease any form of apprehension they could have had towards the study.



The researcher's limited ability in carrying out research might also have affected the outcome of this study. However, the constant guidance and critique provided by the researcher's supervisors is expected to have counterbalanced this limitation.

Acknowledging all these limitations, the researcher is still confident that authentic data was collected in this study. This is because, more than one data collection methods were employed in the study to triangulate the data obtained from the individual data collection methods (Gall, Gall, and Borg, 2007).

### **1.7 Delimitations**

The scope of this study was limited to the occurrence of code switching in Junior Secondary Physical Science classrooms and how these Physical Science teachers view the place of code switching in the teaching and learning of Physical Science.

### **1.8 Definition of terms**

**Code-switching** - Alternating back and forth between two languages in a conversation (Fromkin, Rodman, and Hyams, 2007). In this study, it refers to simultaneously using English and a mother tongue as media of instruction in the classroom.

**Language / medium of instruction** - The language through which a subject is taught (MBESC, 2003).

**Lingua franca** - A language used by common agreement in areas populated by people who speak diverse languages, but desire that common language for social or commercial communication (Fromkin, Rodman and Hyams, 2007).

**Mother tongue** - The language(s) one identifies with or is identified with as a native speaker of by him/herself or others which is commonly the language(s) one knows best and the language(s) one uses most (UNESCO, 2003).

**Home language** - This is the language which children speak at home (UNESCO, 2003). A home language and a mother tongue are considered to be synonymous in this study.

**National language** - National language in this study is used in accordance with the definition in the Discussion Document for the Language Policy for Namibian Schools to indicate a language spoken in Namibia as a mother tongue by Namibian citizens (MBESC, 2003).

**Second language** - A language of which the learner has some knowledge and is exposed to regularly, because it is one of the major languages in the community (MBESC, 2003). For example in this study English, due to its role in schools as the medium of instruction was a second language of the teachers and the learners.

## **CHAPTER 2: LITERATURE REVIEW**

This chapter reviews the literature related to the research topic. The review is arranged according to the following headings: code switching and the Namibian Language Policy; the role of language in teaching and/or learning Science; arguments in favour of the use of code switching; arguments against the use of code switching; the impact of code switching on the teaching and learning of Physical Science and lastly the teachers' perceptions about code switching.

### **2.1 Code-switching and the Namibian Language Policy**

Code-switching, according to Fromkin, Rodman, and Hyams (2007); refers to switching back and forth between two languages in a conversation. Science, typically, emphasizes vocabulary and abstract thought and as a result English second language learners may, particularly, find Science difficult (Settlage and Southerland, 2007). Many of the concepts e.g. gravity, force, energy, and many others in science do not have equivalent terms in the vernacular languages e.g. in Oshiwambo. This, at times, makes it hard for the students to understand such concepts. In some cases, the teachers resort to explaining the concept by giving examples of its occurrence or its applications in a mother tongue or ask one of the students to explain to her/his peers in their mother tongue.

According to Setati, Adler, Reed, and Bapoo (2002); the majority of the teachers in South African schools work in classrooms where English is officially the language of learning, but is not the main language of either the teachers or the learners. As a result, Mathematics and Science teachers faced the double challenge of teaching their subject in English while the learners are still learning this language (Setati et al., 2002). In Namibia, English is a second

language to most of the learners and teachers, as their home language is usually not English. One may have observed from the streets that in Namibia, people usually speak to each other in their home languages and they only tend to speak in English or Afrikaans to people that do not share the same home language. A similar situation can be imagined in the schools.

A similar point of view is voiced by Probyn, Murray, Botha, Botya, Brooks, and Westphal (2002) as cited in Probyn (2005, p.1856) that in schools where teachers and learners share a common home language, “the lingua franca amongst teachers and learners is their common home language, with the use of English being confined to the classroom.” Probyn (2005) further states that in such classrooms, students have a tendency of using their home language with their classmates as well as in group discussions. Students also tend to use their home language with the teacher, depending on the teacher’s attitudes and/or views on the matter. However, the use of English is reinforced from time to time because the teachers are aware that it is the medium of instruction.

Wolfaardt (2005) noted that many learners fail to attain the minimum language proficiency in English before the introduction of linguistically and cognitively more demanding English-medium subjects in Grade 4. “As a result of problems beginning at primary school, learners continue to lag behind their required level of language proficiency and the majority never really reach the language proficiency in English, which their age and school level demand” (Jones, 1996 cited in Wolfaardt, 2005, p.2359). Most students and possibly a few teachers do not have much confidence when they use English, either in writing or in speaking. As a result, one finds students talking to each other in their home language even when they are in class (especially

when they are working in groups or simply asking their classmates for something) where English is the medium of instruction.

It is not known whether or not this could be happening in the Oshana Education Region especially among the Junior Secondary Physical Science teachers. This study intended to also determine how Junior Secondary Physical Science teachers in the Oshana Education Region ranked their English language proficiency as well as that of their learners.

## **2.2 Prevalence and reasons for code switching**

As mentioned earlier, research has pointed out that the teachers' poor English proficiency adversely affects learning by teaching through the English medium (Brock-Utne, 2001; Holmarsdottir, 2000; Mouton, 2007; Wolfaardt, 2005). Grammar is highlighted as one of the weakest areas when it comes to general language proficiency of Namibia's teachers which could be detrimental to the learners' learning (Wolfaardt, 2005). The teachers' low level of proficiency is cited to be one of the reasons why code switching is widespread in Namibian classrooms (Holmarsdottir, 2000; Mouton, 2007; Wolfaardt, 2005).

The Ministry of Education's JSC examiners' reports on Physical Science for the past years have indicated that the students' command of the English language is still poor (MoE, 2006; 2007; 2008, 2009, 2010). Some of the comments in these reports regarding the students' lack of proficiency in English reveal that learners struggle to clearly express themselves in English, especially in answers requiring explanations. The examiners' reports, further, mention the learners' misspellings of chemicals and elements, even when they are given or listed and that

learners fail to follow the given instructions when they write examinations. It is also revealed that the learners' poor proficiency in English at times causes the learners to code-switch.

It has to be mentioned that in many cases the command of English as the medium of response to the question paper was insufficient. Switching to another language within the answers is not of much use (not all examiners and markers know all languages spoken by candidates) as attempts to translate the answers provided were in vain. All candidates should be instructed to use only English. They should practice writing and be controlled on the quality of their writing and speaking in class in order to practice the correct use of scientific terminology (MoE, 2004, p. 218).

The above extract from one of the national Grade 10 examination reports bears testimony that code switching is widespread in the Grade 8-10 classrooms in some parts of Namibia. The code switching in this scenario is attributed to the English language proficiency of the learners. Learners from the lessons and tests that they write are ought to be aware of the language that they are supposed to use in examinations. Despite this fact, it appears that learners succumb to code switching if they cannot put some of their thoughts into English when writing examinations. This is also an indication that code switching is used by learners as an alternative way of expressing their thoughts when they fail to do so in the medium of instruction.

Besides the reasons mentioned earlier; which are based on the linguistic competencies of teachers and learners, many studies (Ashton et al., 2009; Mouton, 2007; Probyn, 2005; Setati et al., 2002; van der Walt, Mabule, & de Beer, 2001; Wolfaardt, 2005) have given the following as some of the reasons why teachers use code switching in their classrooms: to explain new words, to discipline the learners and for affective purposes; such as praising the learners or joking with the learners.

It is not known if the challenges that force teachers to code switch are also experienced by the teachers in the Oshana Education Region. Therefore, if a similar situation exists in the Oshana Education Region, there would be a need to establish the extent to which this phenomenon is practised by the Junior Secondary Physical Science teachers in the region and their reasons for code switching. This study was set to find answers to all these questions.

### **2.3 Advantages of code-switching**

Brock-Utne (2001) points out that reasons for code-switching may be expressed differently but; more importantly, teachers show concern for the understanding capability of the students. Brock-Utne (2001) recommends that using a language for learning, i.e. as a medium of instruction is different from learning a language. She recommends that it is better to have good instruction in a language per se (such as English in the Namibian situation) and the other subjects should concentrate on content and teachers could code-switch in order for their students to understand the content.

MBESC (2003) emphasizes the fact that a person's identity is contained in his/her language and culture and they need to possess their cultural identity and traditional norms in order for them to be individuals in a multicultural society. In many Namibian schools, learners are encouraged to use English when they are on the school grounds and even more so when they are in class. Sometimes punitive action is taken against students who fail to obey this rule. This may have a negative effect on the way these learners see their home languages. Code switching may, hence, be viewed as a way of recognising the learners' cultural identities and a gesture of respect for the learners' mother tongues.

Mpofu (2006) suggested that teachers should encourage their students to formulate their thoughts and ideas in their home language and then translate them into English. Mpofu (2006), further, recommended that the teachers should use code-switching when in class in order for their students to understand better as well as for the learners to recognize that using their home language is not a sign of stupidity.

Rollnick and Rutherford (1996 cited in Setati et al. 2002), emphasize that the use of learners' main language is a useful means for learners to explore their ideas. They argue that the use of code-switching exposes the learners' alternative ideas. Hence, code switching would allow learners to discuss the ideas that they cannot express in English and thereby exposing such ideas which would have, otherwise, been concealed if they were to adhere to the exclusive English use in the classrooms.

#### **2.4 Disadvantages of code-switching**

The lack of some culturally equivalent terms between the home language and the target language may lead to a violation of the transference of the intended meaning of the subject content (Sert, 2005). This is especially true for scientific terminologies which usually have no equivalent expressions in our national languages.

Sert, supported by Gabusi (n.d), further, stated that code-switching may result in lack of fluency in the second language in the long run, especially if the learners know that they are allowed to fill the “stopgaps” with home language use. This means that proficiency of the students in the medium of instruction might not be developed strong enough when code-switching is practised in lessons.



As discussed earlier, in a multilingual nation such as Namibia, code-switching may not be so desirable if the students practice it when writing national examinations which are marked by teachers from different language backgrounds (MoE, 2004). The examination markers would expect the learners to answer in English and if any learner wrote some things in his/her home language then it would be a problem, especially if the examination marker did not understand that language and did not have the patience to find out from those that understand the language.

## **2.5 The impact of code switching on the teaching and learning of Physical Science**

“It is generally known that language is an important factor in cognition” (Kulkarni, 1988, p. 151). For this reason, language should be considered as an important factor in learning Science. Teachers have the responsibility of ensuring that the subject content is accessible to their students by using a language that the students understand. Kulkarni (1998) recommends that instead of focusing on improving language skills for better science education, people need to realize the role that science can play in improving language skills. This can be done by addressing the simple ways in which the students ruin the meaning of their answers either by misspellings (e.g. ‘reflaction’ which one would not know whether the student means ‘reflection’ or ‘refraction’) or by misinterpreting ideas (e.g metals are the only conductors of heat instead understanding that metals are the best conductors of heat). This is supported by what Brock-Utne (2002, p. 21) says:

There is no evidence to show that using a language as a medium of instruction will necessarily lead to proficiency in that language. If the aim is to learn English, it is much better to have good instruction in that language by trained language teachers. Teachers trained in other subjects are not language teachers and are naturally more concerned

about teaching the subject matter to students. They will often make use of code-switching in order for their students to understand.

These views point out the need to concentrate more on teaching the subject content as opposed to the teachers putting the language first. Brock-Utne (2002), hence, pointed out that making use of code switching may facilitate a better understanding of the subject content by the learners.

MoE (2004) reported that the Grade 10 learners' use of code switching in national examinations resulted in them losing marks when they code switched, sometimes as a result of not getting any examination marker to translate the learners' mother tongue answers. This is an indication that code switching can negatively affect the performance of the learners although this might not necessarily mean that it affects the learning of Physical Science in the same way. At least such learners tried to put their ideas on paper and should there have been a mechanism in place these learners' answers might have been considered. This implies that code switching in Physical Science classrooms could have a positive impact on learning; otherwise the learners' ideas that they find hard to communicate in English would remain suppressed.

In a study conducted by Tobin and McRobbie (1996 cited in Lee, 2005), Chinese high school learners in Australia were reported to have been limited by their difficulties in English to learn Chemistry with understanding, despite their efforts. Tobin and McRobbie (1996 cited in Lee, 2005) contended that learning Chemistry could have been made easier by accommodating the non-native English speaking learners with opportunities to fully employ their native language tools.

Wheeler (2008) gives an account about Rachel Swords, who, during the first year of implementing code switching, closed a 30-point gap in test scores between her African American and white students. Wheeler, together with several other researchers (Lee, 2005; Probyn, 2005; Setati et al., 2002 and Skiba, 1997) indicate that code switching has a positive effect on teaching and learning in school subjects. Lee (2005) stated that when instruction is in English, science learning, for the learners who are non-native speakers of English is usually directly related to their level of English proficiency. Therefore, learning science may be a daunting task for many learners in Namibian schools; who are non-native English speakers, considering their low level of English proficiency.

## **2.6 Teachers' perceptions of code switching**

Traditionally, code switching has been perceived as having an inferior status to using the language of instruction (Olugbara, 2008). Code switching is considered by some teachers to have a negative impact on learning and especially on the acquisition of the language of instruction in schools, as it is viewed as an interference to learning the target language (Gabusi, n.d.; Mouton, 2007; Skiba, 1997). However, some studies maintain that code switching provides an opportunity for language development (Probyn, 2005; Skiba, 1997; Wheeler, 2008).

Mouton (2007) noted that there were discrepancies between the responses the teachers in her study gave in the questionnaires on their views regarding the prevalence of code switching and the observations conducted. She noted that the respondents tended to, mainly, use English during observations, whilst they indicated in the questionnaires that code switching was prevalent and was an everyday occurrence. She attributed this behaviour to the possibility of the respondents

not acting as they normally do due to the presence of the researcher in their classrooms. Other studies on code switching have pointed out similar behaviour in teachers whose lessons were being observed (Brock-Utne, 2002; Setati et al., 2002). This indicates that code switching seems to be a common language practice in Namibian classrooms and elsewhere, but teachers do not openly acknowledge that they code switch since they know that they are supposed to teach through the English medium.

## **2.7 Summary**

The reviewed literature points out the prevalence of code switching in science classrooms and the reasons why teachers code switch. The position of mother tongue is also discussed for learners studying science through a second language by looking at the role that language plays in the teaching and/or learning of Science. The benefits and the shortcomings of code switching in classrooms were also discussed; including the impact that code switching has on the teaching and learning of science as well as the teachers' perception of code switching in the science classrooms.

Although the reviewed literature has identified a number of factors that cause teachers to code switch when teaching in classrooms, it is not known if the same would apply to the Physical Science in the Junior Secondary classrooms in selected schools in the Oshana Education Region. This study, therefore, intends to find out whether or not the same picture presented in the literature review on code switching is obtained or not in the Oshana Education Region Junior Secondary Physical Science classrooms.

## **CHAPTER 3: METHODOLOGY**

This chapter discusses the methodology that was used to conduct this research. The chapter specifies the research design, population, sample, sampling procedures, research instruments, data collection procedures, data analysis as well as the ethical considerations of the study.

### **3.1 Research design**

This study followed a mixed research design where both the qualitative and quantitative research approaches and techniques were collectively employed. Mixed research is renowned for its ability to combine the strengths of both qualitative and quantitative research designs (Johnson and Christensen, 2008; Lodico, Spaulding, and Voegtle, 2006; McMillan and Schumacher, 2006).

The mixed research design was thus chosen in order to lessen the weaknesses associated with either quantitative or qualitative, as individual research outlook as the following example given by Johnson and Christensen (2008) points out: Quantitative research is popular for its usefulness for making statistical generalizations about populations, but it is not quite useful for exploring new phenomena or for documenting participants' personal views and opinions. In a mixed research study this weakness of quantitative research is turned into a strength by the qualitative aspect of the study, as it provides deep and rich information about participants' outlooks and personal meanings.

To be more specific, the triangulation method was used in this study. "Triangulation is the term given when the researcher seeks convergence and corroboration of results from different methods studying the same phenomenon" (Johnson and Christensen, 2008, p. 451). Lodico,

Spaulding, and Voegtle (2006) note that in triangulation, the data collected from the quantitative and qualitative methods are compared to find out if they yield the same results. As McMillan and Schumacher (2006) explain, triangulation involves cross-validation among data sources, data collection strategies, time periods and theoretical schemes. The researcher tried to find regularities in the data collected via different methods to see whether the same pattern keeps recurring (McMillan and Schumacher, 2006). In this study, the data were collected by means of quantitative and qualitative data collection instruments, namely observations, questionnaires and interviews. Furthermore, the data which were obtained from different participants from different schools were collected and analysed at the same time to see if they yielded similar results.

Johnson and Christensen (2008) said that triangulation can substantially increase the trustworthiness of research findings. They further point out that having the research results pointing to the same conclusions or inferences, makes the researcher to state his/her findings with confidence. The researcher, hence, hoped that the use of triangulation might help increase the reliability of the research findings of this study.

### **3.2 Population**

A population is the set of all elements, the large group to which a researcher wants to generalize his or her research results (Johnson and Christensen, 2008). The population of this study consisted of the Physical Science teachers for Grade 8-10 in the Oshana Education Region.

### **3.3 Sample**

The sample of this study consisted of 22 Physical Science teachers who taught at the Junior Secondary phase, i.e. grades 8 to 10 from eight schools in the Oshana Education Region. A

combination of stratified sampling technique and convenience sampling was used for this study to select the sample, which, according to McMillan and Schumacher (2006), involves the population being divided into subgroups based on the variable chosen by the researcher, e.g. gender, age, location, or level of education. The researcher opted for this type of sampling in an attempt to have a representative sample of the population. The subgroups that the researcher identified were based on their locations namely; 1) schools in and around Ondangwa, 2) schools in and around Ongwediva and 3) schools in and around Oshakati.

Convenience sampling involves a selection of research participants on the basis of being accessible or expedient (McMillan and Schumacher, 2006). All accessible Junior Secondary Physical Science teachers from the selected schools in the identified strata were conveniently chosen for the study.

### **3.4 Research instruments**

As Gall, Gall, and Borg (2007) mention, researchers need to vary the methods used to collect research data in order to see if they are corroborated across these variants. The following instruments were used to collect the data from the research participants to triangulate the findings:

#### **3.4.1 The researcher**

When qualitative observation is conducted, the researcher is considered a data collection instrument because it is the researcher who must decide what is important and what data are to be recorded (Johnson and Christensen, 2008). In light of this view, the researcher was one of the

data collection instruments in this study, as she played a key role in deciding what data was worthy of being recorded during the lesson observations.

### **3.4.2 Observation schedule**

The researcher assumed the role of an ‘observer-as-participant’, i.e. taking on the role of an observer much more than the role of a participant where the research participants were fully aware that they were being observed (Johnson and Christensen, 2008). An observation sheet was used to record any behaviour that the researcher found crucial for the study. For example, the learner-to-learner verbal interactions, the manner in which the teacher responded to learners’ code switching and the learner-to-teacher verbal interactions.

### **3.4.3 Standardised open-ended interviews**

The researcher prepared standardised open-ended questions for the interview whereby the exact wording and sequence of the questions in the interview were determined in advance and all the respondents were asked the same questions (Johnson and Christensen, 2008). The researcher tape-recorded these interviews in addition to taking notes to ensure that the researcher captured the interviewees’ responses as accurately as possible.

### **3.4.4 Questionnaires**

A mixed questionnaire was designed for this study. This is the type of questionnaire that employed a combination of open-ended (questions that allow the respondents to answer in their own words) and closed-ended (questions that force the respondents to choose from a set of pre-determined responses) items (Johnson and Christensen, 2008).



Some items in the questionnaires were in the form of Likert-type scale response anchors. The Likert scale questions were mainly on five-point scales, which required the respondents to rate their level of agreement with various statements (Gall, Gall, and Borg, 2007). For example, the respondents were asked to indicate the impact that they considered code switching had on the teaching and learning of Junior Secondary Physical Science on the following scale: *Very positive, Positive, Neutral, Negative* and *Very Negative*. On the questions related to the frequency of code switching in their classrooms, the teachers were asked to choose answers from the following scale: *Every time, Almost every time, Sometimes, Rarely* and *Never*.

### **3.5 Data collection procedures**

With the guidance of her supervisors, the researcher designed the data collection tools; a questionnaire, an observation schedule and an interview guide after the Post Graduate Studies Committee (PGSC) of the University of Namibia approved the research proposal.

During the first visit to each school, the researcher set up appointments for the lesson observations with the research participants. The participants were also given the questionnaires during the first visit so that they could answer them in their free time and the questionnaires were only collected during the final visit, which usually was after the interview was conducted with the participant. In so doing, the researcher anticipated that the participants would have had ample time to answer the questionnaires fully. Collecting the questionnaires after the interviews also guaranteed a 100% return of the questionnaires. However, although all questionnaires were returned some participants still left the questionnaires unanswered until the last visit when they hurriedly completed the questionnaires for the researcher to take with her. This might have been

the reason why some questions were left unanswered while some of the responses were rather too brief and unclear.

The researcher observed two lessons for 12 (54.5%) of the participants. Seven (31.9%) of the participants could not be observed because they only taught Grade 10 Physical Science and students were busy writing their final examinations when the researcher visited their schools. The remaining three (13,6%) of the participants were not observed because they repeatedly avoided the appointments with the researcher, which she interpreted to be an indication of the participants' unwillingness to be observed. During the lesson observations, the researcher recorded on the observation sheet all the information that she considered relevant to the study; such as occurrence of code switching, reasons for code switching, learner-to-learner communication, learner-to-teacher communication, etc.

Twenty (90.9%) of the 22 teachers were interviewed whereas the two remaining teachers did not want to be interviewed and thus were not interviewed. The interviews were conducted on the same day after the last lesson had been observed. For the participants that were not observed, the researcher arranged the interviews to be conducted when she went to collect the questionnaires. The respondents were asked the same eight open-ended questions, with a few probes for the responses that the researcher found unclear or incomplete.

### **3.6 Pilot Study**

A pilot study was carried out with two teachers from two different schools (one teacher from each school) in Oshana Education Region who were not part of the main study. The purpose of the pilot study was to test the practicability of the data collection plan that was initially proposed

for the study. Piloting was also essential to determining whether the research instruments that were designed for the study functioned properly before they were used in the actual study (Johnson and Christensen, 2008).

The researcher observed three Physical Science lessons of one class for each of the two teachers in the pilot study. These observations took almost a full week to complete, due to time tabling constraints. On some days the two teachers' lessons took place at the same time and the researcher could only observe one of the teachers' lessons and returned for the other teacher's lesson on the following day. It was also not easy to observe consecutive lessons for these teachers because it was not possible to drive from one school to the other and be on time for the next lesson. This made the researcher realise that it was going to be a challenge to carry out three lesson observations for each one of the 22 participants of the study and thus the number of lessons to be observed per participating teacher were reduced to two for the actual study.

The questionnaire and the interview guide were not changed because the respondents seemed to have understood the questions, judging from how the piloted teachers answered. The lessons observed were tape recorded in order for the researcher to transcribe the lesson recordings and tally the number of mother tongue words spoken by the teacher during the lesson against the number of words spoken by the teacher in English during the lesson. This exercise was found to be laborious, since the interviews too were going to be tape recorded and to be transcribed too. The researcher decided to neither tape record nor transcribe the lessons observations. Instead, a checklist was designed with a four point scale consisting of the following categories to indicate the teachers' level of code switching: *Never*, *Rarely*, *Sometimes* and *Always*.

### **3.7 Data analysis**

Descriptive statistics were used to analyse the quantitative research data of the study. Descriptive statistics are mathematical and/or graphical techniques used to organise or summarise a set of numerical data (Gall, Gall, and Borg, 2007; Lodico, Spaulding, and Voegtle, 2006). The researcher used percentages to indicate the frequency of various responses expressed by the respondents. The researcher also arranged the quantitative research data into tables, histograms and bar graphs in order to present the key features of the research data in a more interpretable manner (Johnson and Christensen, 2008).

The qualitative data was analysed by means of content analysis. Content analysis is a method that involves comparing, contrasting and categorizing data in order to draw meanings from the data (Gall et al., 2007).

The researcher grouped the responses into themes pre-determined by the research questions namely: Prevalence of code switching, reasons for code switching, advantages and disadvantages of code switching, the effect of code switching on the teaching and learning of Physical Science and teachers' views on code switching in their Physical Science classrooms. Patterns were then looked for from the responses under each theme and such patterns were coded by making a frequency count of each of the occurrence of each coding category in responses to open-ended items' responses (Gall et al., 2007). Descriptive statistics was then used to summarise these frequency counts into tables and bar graphs.

### **3.7 Ethical considerations**

Taylor and Bogdan (1998) advise that participant observers should gain access to organisations by requesting permission from those in charge. The researcher wrote a letter to the Permanent Secretary (PS) of the Ministry of Education to ask for permission to carry out the research once the proposal was approved by the Postgraduate Studies Committee (PGSC) of the University of Namibia. Upon receiving the permission letter from the PS, the researcher attached it to another permission letter that was sent to the Director of the Oshana Education Region. After being granted permission by the PS and the Regional Director, the researcher then took copies of these permission letters to the school principals while at the same time seeking the principals' and the sampled teachers' consent. The principals and teachers' permission was mainly verbal, but was documented in the form of consent forms that the researcher designed for them to sign for records purposes.

The researcher also used the initial meetings with the principals and the research participants to explain the purpose of the study and to establish rapport with the participants. The respondents were informed about their right to withdraw from participating in the study without fear of punishment. The research participants were, further, assured that their identities would not be disclosed and the information that they provided would be treated confidentially. Participants were not asked to state their names during the interviews and the questionnaires did not require the participants to fill in their personal details as a means of assuring them of anonymity. The researcher rather formulated codes with which she identified the schools and teachers.

### **3.9 Summary**

This chapter outlined the methodological aspects of the study. The research design, population, sampling, data collection techniques as well as data analysis methods employed for the study were explained. The ethical principles that the researcher considered when she conducted the study were also discussed.

## **CHAPTER 4: PRESENTATION AND DISCUSSION OF THE RESEARCH FINDINGS**

The previous chapter dealt with the methodology and research techniques that were employed in this study. This chapter presents, analyses and discusses the results of the research findings obtained from the research participants.

The research findings are presented in the following themes which were pre-determined by the research questions:

1. Prevalence of code switching in the Junior Secondary Physical Science classrooms.
2. The teachers' reasons for code switching.
3. The advantages and disadvantages of code switching.
4. The impact of code switching on the teaching and learning of Junior Secondary Physical Science.
5. The teachers' perceptions towards code switching in their classrooms.

### **4.1 Theme 1: Prevalence of code switching in Junior Secondary Physical Science classrooms**

The research findings about the prevalence of code switching were presented in the following order: Firstly, the findings of the Observations were presented and discussed. These were followed by the presentation and discussion of the interviews and those of the questionnaires.

#### **4.1.1 The prevalence of code switching during the lesson observations**

##### **a) Class size**

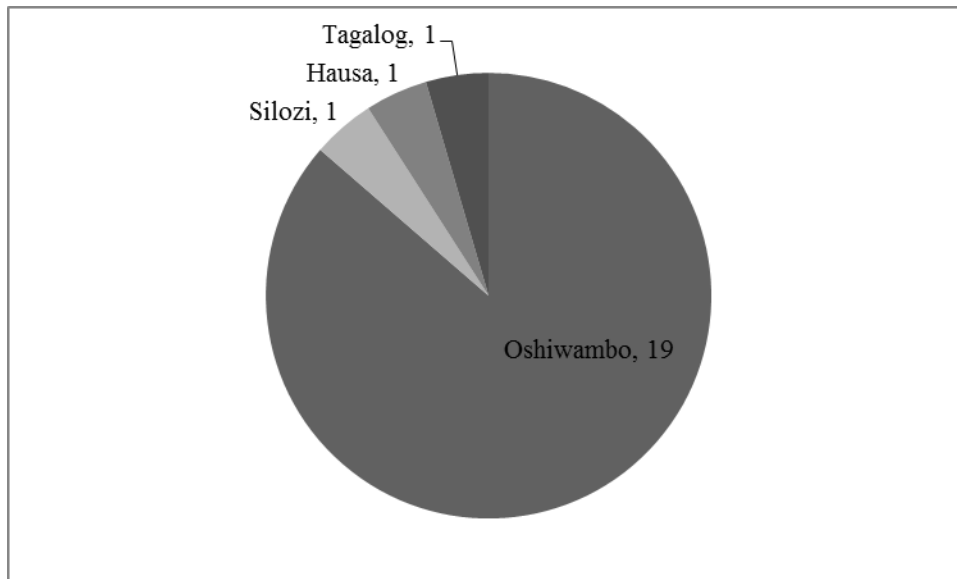
Of the 12 classrooms that were observed, seven (58.3%) were found to be smaller classes with the number of learners ranging from 25 to 29. The remaining five (41.7%) had relatively large class sizes; ranging from 30 to 36 learners.

It was found that code switching was practised by four (80%) of the five teachers who had larger classes. Only three (43%) of the seven teachers that had smaller classes code switched. According to Martin, Sexton, Wagner and Gerlovich (1997), smaller class groups are easier for teachers to try and improve understanding, to monitor problem solving and to create an atmosphere of scientific enquiry. To achieve the same for larger classes, teachers might have to employ different approaches such as code switching.

##### **b) Learners vs Teachers' mother tongue**

The mother tongue for 19 of the 22 respondents (86.4%) was Oshiwambo, for (4.5%) of the respondents it was Silozi and the remaining two respondents (9.1%), it was Hausa (from Nigeria) and Tagalog (from Philippines) languages, see Figure 1. It should be noted that Oshiwambo was the mother tongue of all the learners in the observed classrooms.





**Figure 1: Teachers' mother tongues (N = 22)**

Code switching was more prevalent in the classrooms where teachers had the same mother tongue as the learners. This was to be expected because these teachers and learners were well conversant in their mother tongue; unlike the teachers whose mother tongue was different from the learners' and thus had limited knowledge of the learners' mother tongue. Interestingly, the teachers whose mother tongue was different from the learners still found a way of bringing Oshiwambo words into their discussions with the learners in their lessons. They did this by asking the learners to translate some of the Physical Science terms to others or by uttering one or two word phrases in Oshiwambo for example; “*Aaye!*” [No!] or “*Kalunga kandje*” [my God].

### **c) Teachers' and learners' verbal interactions**

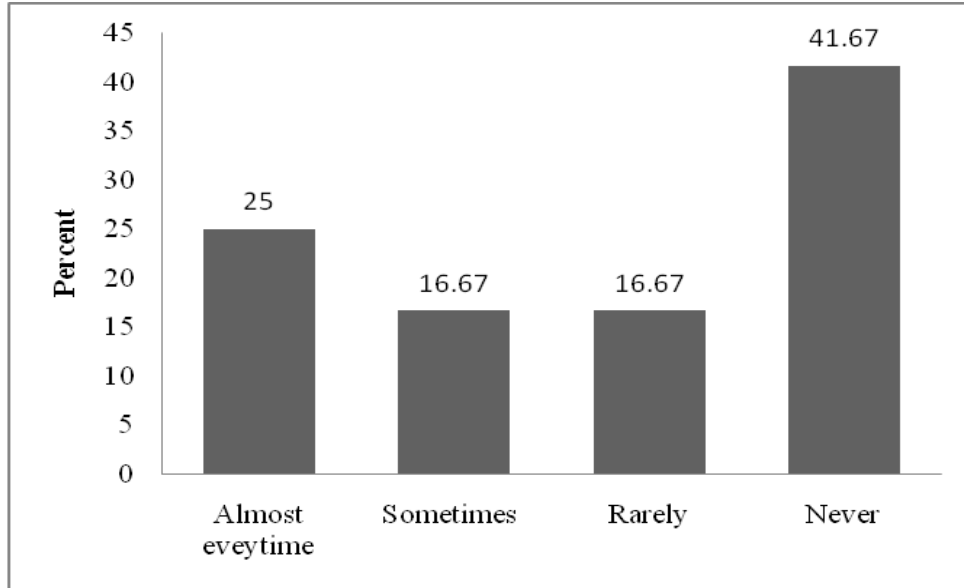
In 75% of the observed classrooms, English was the main language of instruction during the lessons. However, it was interesting to observe how some teachers, occasionally, switched to Oshiwambo when they were teaching and when they were communicating issues that were not

directly part of their Physical Science lessons. For example, a teacher asking if the learners had cleaned the class: “*Omwa komba ngaa?*” after which the teacher simply went back to the lesson’s deliberations in English.

Teachers also spoke to students mostly in Oshiwambo when they were outside the classroom, for instance, when the learners submitted their books at the office or even when they asked questions about what they had learnt during the lesson. For example, a learner that collected the exercise books for the whole class handed them to the teacher saying: “*Miss onda eta omambo*” [I have brought the books Miss].

#### **d) Teachers’ code switching**

During the classroom observations, the researcher concentrated on the extent to which the teachers code switched over the entire lesson. The observations were recorded on a 4-level scale: *Almost every time* (teacher mixed English and mother tongue in almost every sentence per lesson), *sometimes* (teacher spoke mother tongue words once after every five to six sentences but spoke more in English than in Oshiwambo in the lesson), *rarely* (teacher spoke one to five words in mother tongue per lesson) and *never* (teacher spoke only in English throughout the lesson). The researcher recorded the teachers’ frequency of code switching during the lesson observations in Figure 2.



**Figure 2: Teachers' code switching during the lesson observations (N=24)**

Figure 2 shows that in 41.67% of the lessons observed, the teachers only used English. Generally, code switching was prevalent in 58.33% of the observed classrooms; comprising 25% lessons where the teachers code switched almost every time, 16.67% of the teachers code switched sometimes. These teachers used mother tongue when they repeated questions or explanations and when they communicated general ideas to the learners and another 16.67% of the observed classrooms, where the teachers code switched rarely. These teachers mainly used one word phrases to discipline and call for the learners' attention e.g. *“hey kamatyona”* [hey young boy]. The non-Oshiwambo speaking teachers predominantly used this level of code switching to call for the learners' attention and to express their feelings e.g. *“meme”* [meaning mother, used in this context to express surprise] and *“Kalunga kandje”* [my God].

The classroom observations revealed that code switching was prevalent in the Grade 8-10 Physical Science classrooms in the Oshana Education Region. The prevalence of code switching

during the classroom observations in this study was found to be higher than the 37% prevalence that Mouton (2007) found during her study. This might be due to the fact that the learners in the observed classrooms of this study all spoke the same mother tongue and that the majority (86%) of the teachers spoke the learners' mother tongue.

Although the participants were assured of the confidentiality and anonymity of their identities in the study, the researcher noticed that the teachers might not have taught as they would have normally done with an outsider in their classrooms. After ignoring the learners' Oshiwambo comments and questions by responding in English, one teacher specifically cautioned her learners: *"Anyway, we normally use just only to speak in English, speak in English please."* This also sounded as a reassurance for the researcher that code switching was not an everyday occurrence in that classroom. The fact that the learners constantly spoke to the teacher in Oshiwambo made the researcher to think that Oshiwambo was usually used in that classroom. As Mouton (2007) found in her study, the teachers appeared to resist code switching. The results from the observations reflected a lower code switching prevalence than the results from the questionnaires and interviews. In this study there were also discrepancies between the teacher observations and their responses in the questionnaires and interviews regarding the prevalence of code switching.

Thirteen percent of the teachers seemed to be uncomfortable with having their lessons observed. These teachers avoided having their lessons observed by giving reasons such as: *"I am not teaching Grades 8-10 learners today and I will not be around tomorrow"*, *"my students will be writing a test and I have covered the whole syllabus already"*. Two of the 12 observed teachers

conducted experiments during each of their two observed lessons. The researcher found it rather unusual for the teacher to conduct two different practicals in two consecutive lessons, especially when none of the other observed teachers conducted even a single experiment.

Furthermore, by the time the observations were done, the teachers were well aware of what the study was about from the consent forms as well as from the questionnaires that were handed to them prior to the classroom observations. This might have led the teachers to change their usual code switching practises in order for them to appear correct to the researcher. Hence, the findings about the prevalence of code switching from the classroom observations might not be that accurate.

**e) Other observations:**

The researcher also noted the following in the observations:

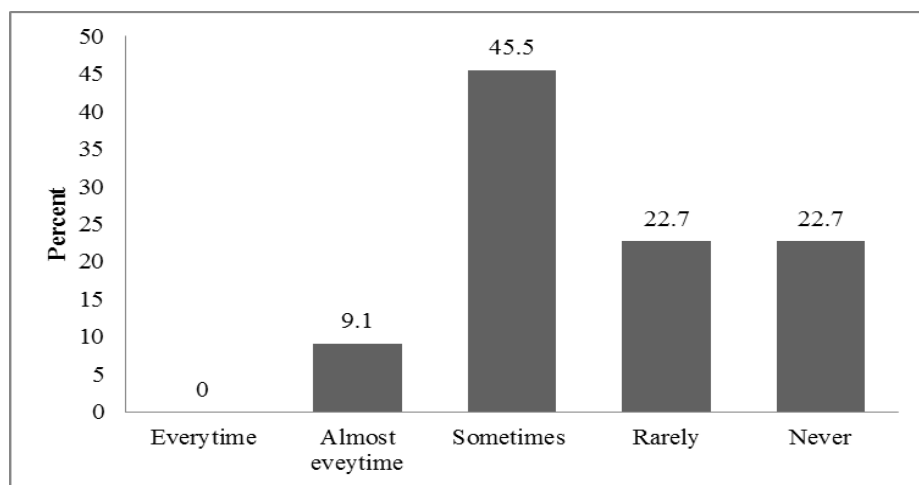
1. The learner-to-learner verbal interactions during the lessons were mainly in the mother tongue. This might be due to the fact that the learners had the same mother tongue, which naturally would be their language of communication.
2. The teacher-to-learner verbal interactions during the lessons were mainly in English. Once outside the classroom, including in the teachers' staff room, Osiwambo became the dominant language of interactions. In addition, the teacher-to-teacher conversations were in Oshiwambo as well. This could be due to the fact that the teachers as well as the learners shared the same mother tongue.

3. It was also observed that during the Physical Science lessons, the learners discussed amongst themselves in Oshiwambo, without any objections from the teachers.
4. The learners in the classrooms, where the teachers used Oshiwambo, were more active than those that were in the classrooms where the teachers did not code switch.
5. When the teachers and/or learners wrote on the chalkboard, they only used English.

This study, like some other studies (Ashton, Iijambo, Matengu, and Kalenga, 2009; Wolfaardt, 2005) found that, English in many Namibian schools played the role of the official language of instruction but it is not yet a lingua franca. Teachers and learners alike were observed to use English for the official tasks, which mostly happened in the classrooms like when writing summary notes, questions and/or answers on the chalkboard, for the written activities and when asking subject related questions during the lessons. Some activities that took place in the classrooms were also treated as non-official and hence more Oshiwambo was used then. For example, when the teachers joked with or teased the learners, as well as when the teachers communicated general things with the learners like asking whether the class was cleaned or when sending the learners, to bring things the teachers had left at the office. Activities that took place outside the classroom were treated more informally and hence more code switching was used irrespective of what was being discussed was related to the deliberations of the lesson or not.

#### 4.1.2 Prevalence of code switching from the questionnaires and interviews

The teachers were asked in the questionnaire to indicate how often they code switched in an average Physical Science lesson. The respondents had to choose from the following responses: ‘Never’, ‘Rarely’, ‘Sometimes’ and ‘Almost every time’. The respondents’ answers are given in Figure 3.

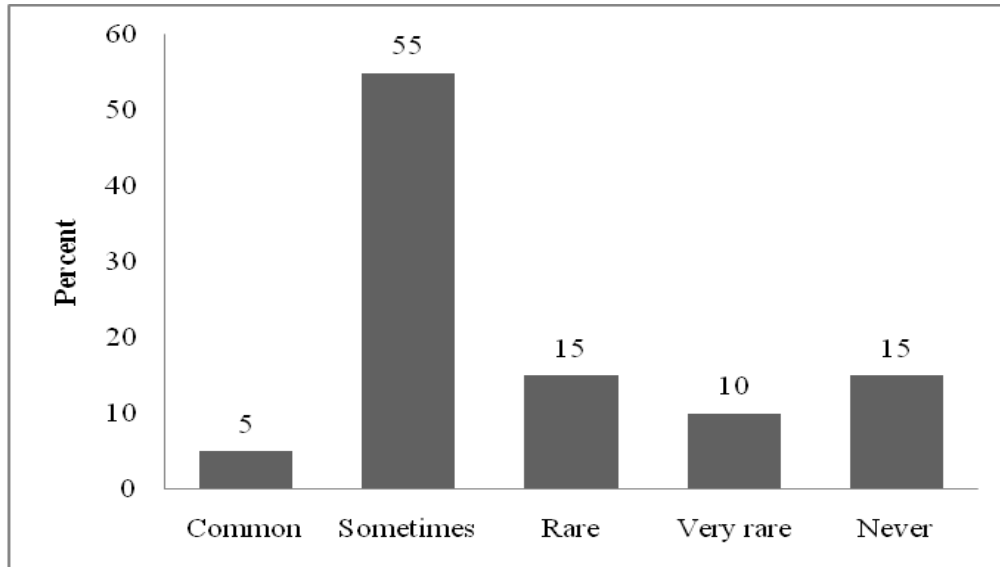


**Figure 3: Teachers’ code switching from questionnaires (N = 22)**

Figure 3 shows that in total, 77.3% of the respondents stated that they code switched in an average Physical Science lesson. About 46% of the teachers indicated that they code switched ‘sometimes’, 22.7% said that they ‘never’ code switched and 9.1% indicated that they code switched ‘almost every time’ in their Physical Science lessons. None of the respondents indicated that they code switched every time.

During the interviews the respondents were asked to respond to the question: *Can you briefly explain the extent to which you practice code switching in your Physical Science lessons?* The respondents provided detailed answers, which the researcher coded into the following categories:

Common, sometimes, rare, very rare and never. The participants' responses are summarized in Figure 4.



**Figure 4: Teachers' code switching from interviews (N = 20)**

It was found from the interviews that 85% of the participants admitted that they code switched in their Physical Science lessons. The most popular response was given by 55% of the participants, that indicated that they code switched sometimes during their Physical Science lessons. Some of the responses that indicated the prevalence of code switching were:

*“Only sometimes, we find especially in some topics which are so difficult even myself I do not understand them to explain them thoroughly English. I try to switch to explain them in Oshiwambo to make them clear.”*

*“It is used in sometimes but not every time because some of the concept in Physical Science you can't explain using mother tongue.”*



*”Eh, not too much. Sometimes you can see that the learners do not understand when you are explaining in English.”*

*”Sometimes I use to speak during the lesson in a language that they can understand for instance Oshiwambo...”*

*”Eh, anyway normal we don’t mix languages but we find it to some learners. If they don’t understand, we have to mix the language like Oshindonga now. But not whole lesson you are just using Oshiwambo, only some few words...”*

However, three (15%) of the participants indicated that they only used English in their Physical Science lessons and no other language. These respondents admitted that code switching was not a strange phenomenon in their classrooms altogether as learners in their Physical Science lessons practise it. Their responses were as follows:

*”It is not really common, in my lessons. I do not code switch. I only use English. My learners mostly use English and that’s how they know me. Even they meet me outside they know they can only speak to me in English. I have noticed that they use Oshiwambo like in group work but as soon as I walk to their group, they change back to English.”*

*”During the lessons, I only use one language which is English. So to me for the benefit of my learners I do not think if it is important to mix the languages and yet the subject itself is in English.”*

*“With me I don’t switch to my mother tongue because number one, I was never taught in my mother tongue so... and Physical Science terminology sometimes is very difficult to find in Oshiwambo. You may find learners looking for a word amongst themselves; they translate it into the mother tongue.”*

The prevalence of code switching in this study was found to be 58.33% from the observations (see Figure 2), 70% from the questionnaires (see Figure 3) and 85% from the interviews (see Figure 4). The findings of the study regarding the prevalence of code switching in the Junior Secondary Physical Science classrooms of the Oshana Education Region from the three data collecting instruments were inconsistent. The findings from the interviews indicated the highest prevalence of code switching and the findings from the observations recorded the lowest prevalence for the study.

The researcher anticipated the questionnaires to indicate a higher prevalence rate of code switching since the respondents answered the questions in the absence of the researcher and the respondents’ responses would have been expressed privately, in the absence of the researcher. The lower prevalence of code switching during the observations could be attributed to the teachers’ and learners’ reactions to the presence of the researcher in the lessons. The results from the interviews regarding the prevalence of code switching may be more reflective of what really happens in the Junior Secondary Physical Science classrooms in the Oshana Education Region compared to the results gathered through the lesson observations and questionnaires. Interviews are renowned for their ability to obtain information that the respondent might not reveal by any other data collection method (Gall et al., 2007). It might be that the respondents were able to

come out with the information related to the prevalence of code switching more openly, perhaps due to the relationship that the researcher had established with them.

## **4.2 Theme 2: The teachers' reasons for code switching**

The data in this section was gathered through the observations, interviews and questionnaires. The findings from the observations are presented first, followed by the findings of the interviews and then the findings from the questionnaires.

### **4.2.1 Reasons for code switching from the classroom observations**

During the lesson observations, the researcher intended to identify the noticeable reasons that caused the teachers to code switch in the Junior Secondary Physical Science classrooms. This was done by exploring various situations that might have necessitated the teachers' use of code switching and thereby identify the reasons why the teachers practised code switching. The following reasons were identified: *To clarify concepts, to encourage discussion and participation amongst the students, to emphasise key concepts, to praise, encourage and motivate the learners, to catch and maintain the interest of the learners, to express their feelings towards various events happening in the classroom, to discipline the learners and for general communication.*

#### **a) To clarify concepts**

One of the common reasons observed for the teachers to switch languages was that they wanted to clarify Physical Science concepts in order to make the Physical Science content clear to the learners. The teachers that code switched often started by translating some of the Physical Science concepts into Oshiwambo after which they would then proceed with further elaborations in English or occasionally in Oshiwambo. For instance, one teacher was explaining to Grade 8

learners that friction was not always bad. The teacher gave an example of how the treads on the car tyres increased the friction between the tyres and the road surface to prevent the car from slipping. One student who did not know what the treads were asked “*Miss tre... shike?*” [Tre..., what Miss?]. The teacher responded by translating it into Oshiwambo: “*Eenyole dhomataiyela*” [The tread on (car) tyres]. A number of learners shouted: “*Oo!*” [Aha!] This was an indication that many learners did not understand the example that the teacher gave to them.

The teachers sometimes after explaining in English asked the learners that had some knowledge of the concepts and/or terminologies to explain to the class in the mother tongue. In one of the classrooms the teacher asked the class: “*Ta ku tiwa ngiini mOshiwambo?*” [What is meant by this in Oshiwambo?]. On another occasion, a teacher who did not know much of Oshiwambo mentioned the word tyres in his explanation. Some learners seemed to have not heard him well, so after asking him more than once what he was saying, he asked the class: “*How do you call them in your language?*” In response, some learners shouted: “*Omataiyela!*” After the translation, the learners seemed to be satisfied with the translation as they shouted in unison “*Oo!*” [Aha!]

Besides translating scientific concepts and/or terminologies, the teachers also brought in some everyday life examples. For instance, after the teacher explained what treads were, a discussion ensued whereby more examples of the benefits of friction in everyday life were discussed mainly in English with a few words in mother tongue.

**b) To encourage discussion and participation amongst the students**

It was observed that the students in the classrooms where the teacher code switched participated more than their counterparts in the classrooms where teachers did not code-switch. Teachers seemed to be aware of this observation because sometimes if the learners were not participating the teachers code-switched to elicit the learners' responses. One teacher, after asking the same question in English several times without any reply from the learners asked them: "*Uunona ne otamu ehama?*" [Children, are you sick?] In response the learners answered that they were not sick: "*Aaye!*" and then a number of them started trying to give answers to the question in a mixture of English and Oshiwambo.

**c) To emphasise key points**

Teachers were also observed to code-switch when they stressed certain concepts for the attention of the learners. This was done by warning the learners against some common misconceptions as well as by emphasising the accepted way of writing. For example, one teacher was emphasizing the correct style of writing the symbols of the SI units: "*Ne kamu lombwelwa nee; alushe o symbol ho unit ha lukilwa omuntu ohayi tamekwa nocapital letter...*" [You just do not listen; a symbol of a unit named after a person is always started with a capital letter...]. In a different classroom, the teacher asked the learners: "*We say that all metals are good conductors of electricity, does it mean that all conductors are metals?*" In response most of the learners shouted: "*Yes!*" The teacher cautioned: "*Takamitheni taa, sha popiwa kulye?*" [Be careful, who said so?] The learners then shouted: "*No!*" After which the teacher warned the learners not to always jump to conclusions and he gave an example of how a wet person would get an electric shock, yet a wet person is not a metal.

**d) To catch and maintain the interest of the learners during the lesson**

Some teachers used code switching in order to keep the learners alert. This was done through joking, teasing and goading the learners, especially when the teachers posed questions to the learners. In one lesson the teacher declared: “*Ngu ita yamukula shila ogwa kakoko*” [Whoever cannot answer this question is a gecko’s wife]. (This is an idiomatic expression in Oshiwambo to tease someone about their unnecessary weakness in doing something). In response, more learners raised their hands to be given a chance to answer when the next question was asked.

The teachers also made use of code switching when they praised and/or motivated the learners. For example, after a long silence when the teacher asked a question without anyone volunteering to answer, one learner raised her hand to which the teacher reacted: “*...iyaloo, tu mangulula wani*” [...thank you, please set us free].

From the researcher’s personal experience, the meaning of some jokes, idioms and/or expressions sound better in the language that they originated from. Translations of such expressions into other languages can alter or diminish their meaning. It could have been that the teachers that switched to Oshiwambo to catch and/or maintain the learners’ attention during the lessons was due to this reason.

**e) To express their feelings towards various events happening in the classroom**

Some teachers were observed code switching in order to communicate their emotions to the learners. Various mother tongue expressions were uttered to indicate that the teacher was happy, surprised or shocked or disappointed with the learners’ responses. The following Oshiwambo

expressions were said by various teachers: “*Meme*” [meaning mother, used in this context to express surprise], “*Kalunga kandje*” [my God], “*aiye*” [no].

**f) To discipline the learners**

It was observed that sometimes teachers code switched in order to bring the learners to order. In one lesson, students were a little chaotic while trying to organise themselves into groups, for group work and the teacher told them to keep quiet in Oshiwambo: “*Mweneni utale*” [Keep quiet please]. In a different classroom the teacher called out “*hey kamatyona*” [hey young boy] to one particular learner that was causing some disturbance in the class.

**g) Code switching for general communication**

In some classrooms, even the teachers who hardly code-switched occasionally switched from English to Oshiwambo when teaching. These teachers used Oshiwambo to say things that were not directly part of the Physical Science content; an example was given earlier about one teacher that code-switched to ask if the learners had swept the classroom: “*Omwa komba ngaa?*”

In another instance the teacher sent a learner to get a piece of chalk. Upon return, the teacher, who did not appear to be happy with the piece that the learner brought asked where the learner got the chalk from: “*Oh, owa kutha peni ano?*” [Oh, where did you get this from? An idiomatic expression that is almost similar to: ‘Look at what the cat dragged in’.] Here the teacher was expressing her dissatisfaction with the poor quality of the chalk that the learner brought to her.

#### **4.2.2 Reasons for code switching from the interviews and questionnaires**

This section presents and discusses the reasons that the respondents gave for using code switching in response to the interview and questionnaire questions that asked the respondents to give reasons for the occurrence of code switching in their Grade 8-10 Physical Science classrooms. Most of the reasons that the teachers gave in the interviews and questionnaires were similar and are presented and discussed together in this section.

##### **a) To ensure understanding of the subject content by the learners**

Ensuring the understanding of the learners proved to be the basis for all the reasons given by the teachers for code switching. Thirty percent of the respondents indicated in the interviews that when they had no other options available to them, they had to use the mother tongue in order to give explanations that would be understood by the learners. Almost all of the responses of the participants who admitted to using code switching appeared to imply this reason. This was evident from the following interview responses:

*“Sometimes you can see that the learners do not understand when you are explaining in English, then a little bit you can explain in mother tongue.”*

*“I code switch so that my learners can understand better.”*

*“Just to ease the understanding of the learners...”*

*“Sometimes, either you speak in English and they are not catch up, therefore you are forced to interpret in eh, a language where the learners can understand.”*



*“The learners need to understand first in their vernacular as well as in English so that they will understand...”*

*“Eh, anyway we do not mix languages but we find it to some learners. If they do not understand, we have to mix the language like Oshindonga now.”*

Some respondents mentioned that they only code switched when they saw that there was a need. They further explained that they code switched once the need arose in order to ensure that the learners understood what they were being taught. These respondents added that they only code switched in particular circumstances, such as when covering certain chapters and/or certain concepts in the Junior Secondary Physical Science curriculum.

The following were some of the views stated by 32% of the respondents in the questionnaires that code switched to ensure that the learners understood the content:

*“To make the content understandable.”*

*“To get the sense of the whole topic or to get what was taught in the topic.”*

*“Because some of the concepts are seemingly hard to understand for the learners and it is best for them to explore in their mother tongue.”*

*“Because when learners do not understand a question posed, I use to ask them to translate them in their vernacular for them to understand.”*

The following reason was given by a non-native speaker of Oshiwambo who also stated that he code switched: *“I do not speak their mother tongue and I switch only few words in their language for them to understand.”*

According to Brock-Utne (2002, p. 20), “Reasons for code switching may be expressed differently but at the core of the matter teachers show concern for the understanding capability of their students”. In this study, although different reasons were provided by the respondents as to why they code switched in their Junior Secondary Physical Science lessons they all converged to one reason: to ensure that the learners understood the Physical Science content that they were being taught as supported by many authors (Ashton et al., 2009; Mouton, 2007; Probyn, 2005; Sert, 2005; Setati et al., 2002). Teachers intuitively recognise when their learners do not understand and hence repeat the explanations done in English to the learners in the mother tongue (Van der Walt, Mabule, & de Beer, 2001). The following teacher’s response in this study seemed to reflect this view : *“Sometimes you can see that the learners do not understand when you are explaining in English, then a little bit you can explain in mother tongue.”*

**b) To explain scientific terminologies**

Twenty percent of the respondents stated during the interviews that code switching helped them to clarify the scientific terminologies. The following were some of the teachers’ responses:

*“...simply because this Physical Science is having those scientific words. They are not able to, the learner are not able to catch up, the other way you have to put it in Oshindonga.”*

*“Like let us say technical concepts of Physical Science, there are some of the terminologies that really needs deep understanding and therefore it is worthy to explain in their mother tongue.”*

*“...like now its bring more of learners cannot conserve the concept of scientific knowledge really fully in a medium of instruction.”*

*“Sometimes the learners are not familiar with the terminology.”*

The teachers' views above mentioned the complexity of the scientific terminologies as one of the reasons for the teachers mixing English with Oshiwambo in their Junior Secondary Physical Science classrooms. The respondents pointed out that learners struggled with meanings of the scientific words in English and teachers code switched for the learners to understand what they were taught in the Physical Science lessons. One respondent quoted earlier mentioned that he code switched to boost a deeper understanding of the Physical Science concepts.

Van der Waalt et al. (2001) agreed and pointed out that teachers can create contexts in the mother tongue with especially the difficult science concepts. However, they cautioned that the mother tongue clarifications should be followed up by an explanation in English. In this way, English language, as a medium of instruction in schools, would be reinforced to the learners.

### **c) To contextualize teaching and/or learning**

When the teachers were asked what they thought caused the learners to use their mother tongue during Physical Science lessons, 30% of the respondents revealed during the interviews that most of the content in Physical Science topics was part of the everyday life, what happens in homes

and communities at large. Therefore, learners already knew about the content before the lessons and they could express them better with their mother tongue than in English. The respondents stated that they were concerned about the learners' understanding of Physical Science and tried to simplify some scientific concepts by explaining or translating them in Oshiwambo. The respondents indicated that they often realised that their learners had not understood the lesson and explained the Physical Science concepts by giving daily life examples. Such examples, had to be explained in Oshiwambo sometimes. Their interview responses in this case were:

*“It should be to help them understand that science in reality is not about anything which is on the outside you know, their boundary, but anything which is locally found within themselves because it has a name in Oshiwambo means they surely can understand that more.”*

*“...to explain something in your vernacular language it is easy because whenever you know something in your vernacular language it is easy to translate it into another language.”*

*“That’s why now sometimes they tell now the teacher to give those familiar examples in the mother tongue.”*

*“Sometimes, ...you are explaining but you look at their faces and the kids are just look at you as they do not understand that what you mean. But apparently you know that these things are founded in their daily lives they know it. You are forced to mention it in their language sometimes.”*

The following responses from the questionnaires mentioned linking Physical Science content to everyday life as the reason for 14% of the teachers to code switch:

*“Sometimes learners do not understand the fact or concept if you refer them to the things that they are familiar with them in their language it contribute a lot on their learning.”*

*“Because some of the concepts are seemingly hard to understand for the learners and it is best for them to explore in their mothers’ tongue, of their everyday subject related concept to reality.”*

*“When giving familiar example for learners to understand the concept fully.”*

These teachers stated that code switching was sometimes useful in their Physical Science classrooms to prove to their learners that what learners were taught at school was applicable to their daily lives. As one respondent put it in an interview; *“...it [code switching] also link the scientific knowledge to the everyday’s activities that they do home like maybe they are boiling water then they also refer to what they are learn and also can explain to the elders or parents that what we do here is what we normally learn in Physical Science”*.

Kasanda, Lubben, Gaoseb, Kandjeo-Marenga, Kapenda, and Campbell (2005) conducted a study about the use of out-of-school everyday contexts in some six Namibian classrooms. They found that the out-of-school experiences were introduced more frequently in the Junior Secondary phase of education than in the Senior Secondary phase in the Namibian schools. Different teachers would handle the out-of-school contexts differently and some respondents in this study indicated that they used code switching as a way of introducing everyday contexts in their Physical Science classrooms. As Sert (2005) noted, code switching may be a tool to construct a bridge from what is known in the mother tongue to what is unknown in a foreign language.

#### **d) Learners' English language proficiency**

The learners' low level of English language proficiency was quoted in the interviews as one cause for the Junior Secondary Physical Science teachers in the Oshana Education Region to code switch. The respondents mentioned that they did not let the language be an obstacle to the learning and/or teaching processes and so the teachers code switched as a means of ensuring that all learners understood what they were being taught. Some of the responses from the interviews were as follows:

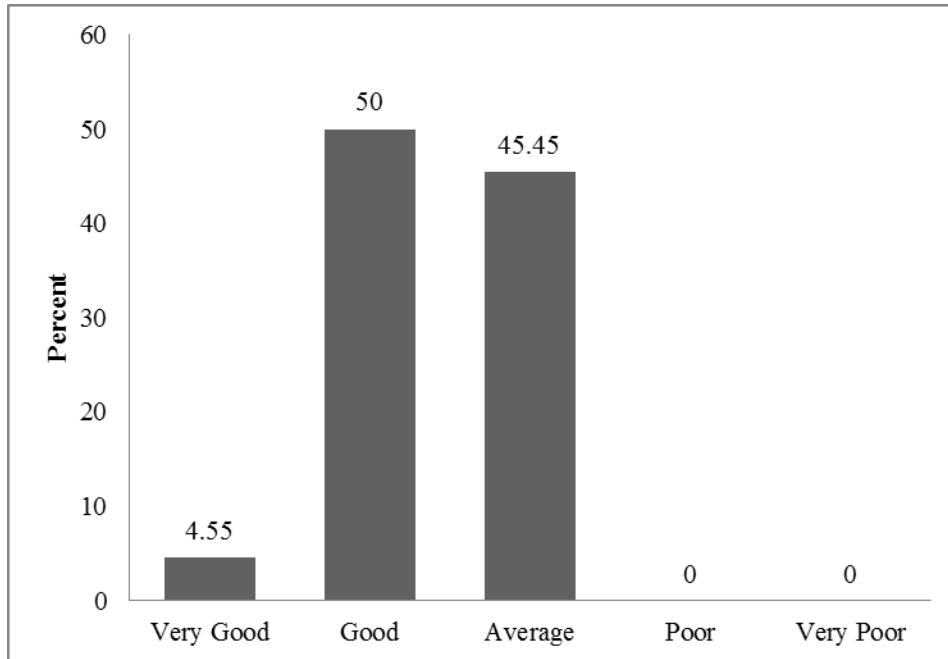
*"...it can happen that there are some terms you are using in the explanations that the learners do not understand."*

*"...not everyone understands English very well as our second language, so when there is a problem one has to switch to the mother tongue."*

*"English is just the official language but there might be things which are not clear."*

*"Sometimes when you are giving a lesson, learners do not understand what is really that you are talking about. Then you have to put it in their mother tongue so that they can understand well."*

The teachers were asked in the questionnaires to indicate the level of the English language proficiency of the learners in their Physical Science classrooms. Their responses are given in Figure 5.



**Figure 5: Learners' level of English language proficiency by teachers (N = 22)**

From Figure 5, it can be seen that half (50%) of the respondents indicated that the English proficiency of the learners was good while 45,45% indicated that it was average only 4,55% indicated that it was very good. None of the respondents ranked the learners' level of English Proficiency as poor or very poor.

Some of the teachers' who considered their learners' English proficiency to be good gave the following views:

*“Some learners struggle to understand the subject since some words are difficult to understand unless the teacher explain in the mother tongue to make it more easier and better understanding.”*

*“It has negative effect because it force them to learn through rote learning.”*

*“If a learner can’t understand what is read/spoken it might lead to confusions.”*

*“The English language is okay but preferably to use another language for easy understanding.”*

*“It is a bit challenging to some learners because they find some words to be new, but the majority are used to the way I speak.”*

Half of the respondents seemed to generally acknowledge that learners lacked satisfactory proficiency in English language. This was evident from the teachers’ views presented here, indicating that their learners’ English proficiency was rather poor despite the fact that these teachers said the learners’ was average.

Some of the teachers who indicated an average English proficiency for their learners gave the following reasons:

*“Learners are failing to answer the question correctly due to the misunderstanding of the question.”*

*“... learners do not get the meaning of Science terminology used in the lessons. Or in exam questions. In writing a lot of spelling errors among the learners.”*

*“It will prevent them to understand the Science very well, like terminology and definition as well.”*

*“Learners have difficulty in pronunciation and spelling as well. Some learners do not understand all Physical Science terminology.”*



Various effects that the learners' proficiency had on the learning of Physical Science were listed by the respondents. Most respondents stated that the learners' limited proficiency in the English language hindered their understanding of scientific terminologies, definitions and concepts. Learners, it was reported, were negatively affected since they could not understand and follow the lessons clearly if such lessons were presented exclusively in English. Furthermore, it was revealed by the respondents that the learners struggled with the spelling and pronunciation of English terminologies.

The teachers' judgement of the learners' English language proficiency was in agreement with the national Junior Secondary Certificate (JSC) examiners' reports for the past five years. The examiners have constantly lamented about the poor English language proficiency of the learners (MoE, 2006; 2007; 2008; 2009; 2010). In the 2006 JSC report on examinations; the following was reported:

Candidates seem to struggle a lot with the required level of competence and confidence to read well enough to interpret and understand English as a medium of instruction and the corresponding standard for scientifically acceptable expressions. Understanding and responding correctly to the action verbs which introduce the requested command in order to answer the question purposefully remains a challenge (MoE, 2007, p. 162).

The reason why the learners' level of English language proficiency in the studied schools was low could be due to them lagging behind since the early school Grades as reported in the following extract.

Many learners fail to attain the minimum language proficiency in English before the introduction of linguistically (and thereby cognitively) more demanding, English medium subjects in Grade 4. It is often the case that they do not reach the minimum level of English language proficiency required when they enter the Junior Secondary phase of school, at which time they should really be functioning at an intermediate level. As a result of problems beginning at primary school, learners continue to lag behind their required level of language proficiency and the majority never really reach the language

proficiency in English which their age and school level demand (Jones, 1996, p. 285 cited in Wolfaardt, 2005, p. 2359).

The teachers' responses from this study also referred to the learners' backgrounds. They said that some of their learners were not used to the exclusive use of English as a medium of instruction. This, the teachers reported, contributed to the low English language proficiency of the learners and as a result the teachers code switched in order to overcome the learners' poor English proficiency.

**e) The teachers' level of English language proficiency**

Besides the teachers recognising that the learners' level of English language proficiency was low, the teachers indicated that sometimes they code switched when they encountered problems with expressing themselves in English. Ten percent of the respondents explained in the interviews that their own proficiency in English caused them to code switch. This was demonstrated by some responses in which the teachers reflected on their own proficiency in the English language. The following responses were given by the teachers that stated that their low proficiency in English language caused them to code switch:

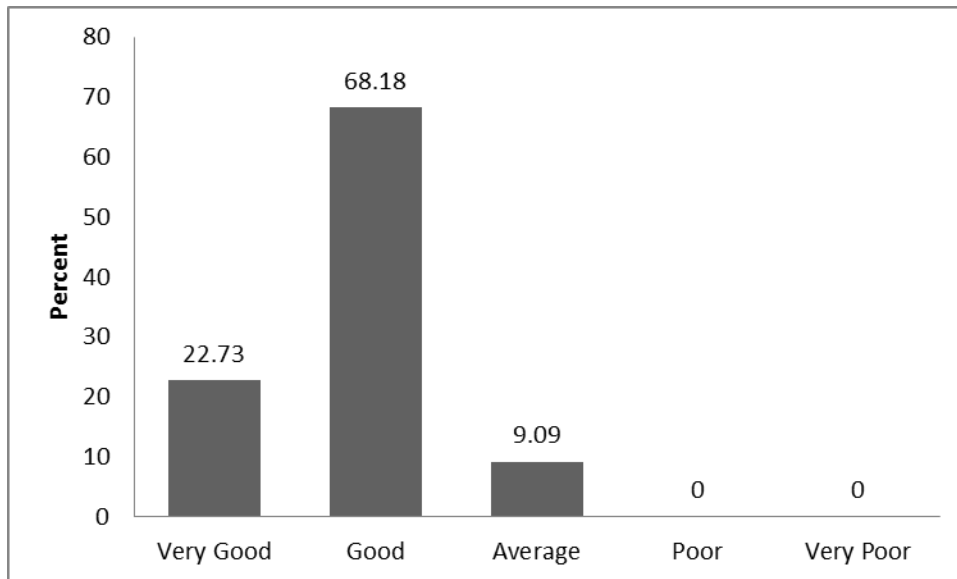
*"...we find especially in some topics which are difficult even myself I do not understand them to explain them thoroughly in English, I try to switch to explain in Oshiwambo to make them clear."*

*"Sometimes you know we normally use it when we get stuck with a word which we cannot explain properly to the learners and you cannot find any other practical example to give them."*

There is a possibility that the teachers' low English language proficiency affected the learning of their students. This is because if teachers, through the erroneous use of language, misrepresent any of the Physical Science information to their learners, then the learners might absorb such information and reproduce it in the assessment activities to the detriment of their learning and academic performance.

In a study conducted by Webb and Webb (2008), the teachers agreed that the code switching strategy is commonly used to overcome both the teachers' and learners' lack of fluency in English. In addition, it was reported that the teachers' use of code switching was shadowed by guilt and inadequacy as they felt that they did not have any approval from the Department of Education authorities.

In the questionnaires, the teachers were asked to rank their own level of proficiency in the English language. The researcher wanted to see how the teachers' self-rankings of English language proficiency compared with the observed proficiency during the lesson observations as well as from the questionnaire and interview responses. Figure 6 summarizes how the teachers rated their English language proficiency.



**Figure 6: Teachers' level of English language proficiency (N = 22)**

From Figure 6, 68.18% of the teachers rated their own proficiency to be “good” and 9.09% rated their proficiency in English as average. Only 22.73% of the respondents indicated that their English proficiency was “very good”. None of the respondents ranked their English language proficiency as poor or very poor.

Besides the challenges in teaching Junior Secondary Physical Science that the teachers associated with the learners’ low English language proficiency, they acknowledged that their own English language proficiency was not perfect. Their level of English language proficiency could, therefore, pose challenges to the teaching and learning dynamics of Junior Secondary Physical Science classrooms where English was the sole medium of instruction.

The following views regarding how the teachers' English language proficiency impacted on the teaching of Physical Science were expressed by the respondents who rated their English proficiency as "very good":

*"It motivates learners to speak English throughout the lesson outside the lesson."*

*"Actually sometimes there is barrier because of pronunciations."*

*"Based to personal perspective, my proficiency enables learners to assimilate on the subject content, equip learners with relevant understanding."*

*"It encourages learners to find more about English than just speaking it. Learners are also inspired to imitate the way I speak. However, some words are difficult to interpret and need translations."*

The respondents stressed the importance of encouraging the learners to learn and use English language in and out of the Physical Science classrooms. It was further stated that the teachers with a "very good" English language proficiency were a good example for the learners which they tried to imitate in their quest to perfect their own English language skills. One can tell from these views that although the respondents had indicated that their English language proficiency was very good, they still recognised that they encountered problems with English language. The responses *"Actually sometimes there is barrier because of pronunciation"* and *"... some words are difficult to interpret and need translations"* did not appear to indicate the "very good" English language proficiency for these teachers as they stated. It, therefore, appeared that these respondents overrated their level of English language proficiency.

The teachers with a “good” and an “average” English language proficiency said the following about how their level of English language proficiency affected their teaching:

*“My own proficiency provide a major contribution to effective teaching of Physical Science, since I use to explain key words in questions/summary to my learners by giving other words with same meaning or try to use drawings. But there some science concepts which are not easy to simplify when explaining.”*

*“In this way, I am able to express and explain well the subject content of the lesson.”*

*“It will enable me to explain thoroughly rather than in my vernacular language. Because sometime I know a particular thing in my mother tongue.”*

*“Teachers cannot instruct well in a language they don’t know themselves.”*

*“A teacher’s proficiency helps in the better explanation of terms as they can use simpler words if their vocabulary was rich.”*

*“I think the teacher’s language need to be excellent in order for learners to learn and become good in the subject.”*

*“My pronunciation sometime effect my teaching.”*

However, although some of the teachers had overrated their level of English language proficiency, one should acknowledge that the majority (77.27%), have recognized that their English language proficiency was imperfect. This was evident from the following response:

*“Difficulty to summarise and find simple words in English to explain scientific terms clear to learners” and “My pronunciation sometime effect my teaching.”*

These respondents conveyed the idea that their poor pronunciation of English words, spelling, grammar and a limited vocabulary adversely affected their teaching. Teachers, further, said that their ability to explain Physical Science concepts thoroughly would be hindered if they were to use English exclusively when teaching Physical Science. The respondents, further, stated that some concepts were known to them in their mother tongue only, which implied that these teachers had to bring in the mother tongue into their Physical Science discussions with their learners if they had to refer to such concepts. The respondents, moreover, indicated that their explanations of the subject content and lesson presentation would be made much easier and more understandable by using the mother tongue.

The researcher noted that all completed questionnaires had grammar and spelling mistakes from the teachers, which pointed to the fact that the respondents might not have been as fluent in English language as indicated by their responses in Figure 6. Several studies conducted in Namibia have confirmed that the English proficiency of the teachers is fairly low, despite how they ranked themselves (Brock-Utne and Holmarsdottir, 2001; Holmarsdottir, 2000; Mouton, 2007; Wolfaardt, 2005). This can be noted in the quotations by teachers.

**f) To cater for the learners’ diverse learning ability ranges**

Two teachers indicated in the interviews that they code switched to accommodate learners with different learning abilities. This was evident from their responses:

*“The reason is some learner, some learner we are having are slow learners. They do not understand those scientific words. That’s why we are using these languages.”*

*“There is more like the background of the learners they have here, like from Grade one up to Grade eight they normally, I mean Grade seven, they are more used in vernaculars and/or mother tongue in such a way that now the brain allow that concept of using mother tongue.”*

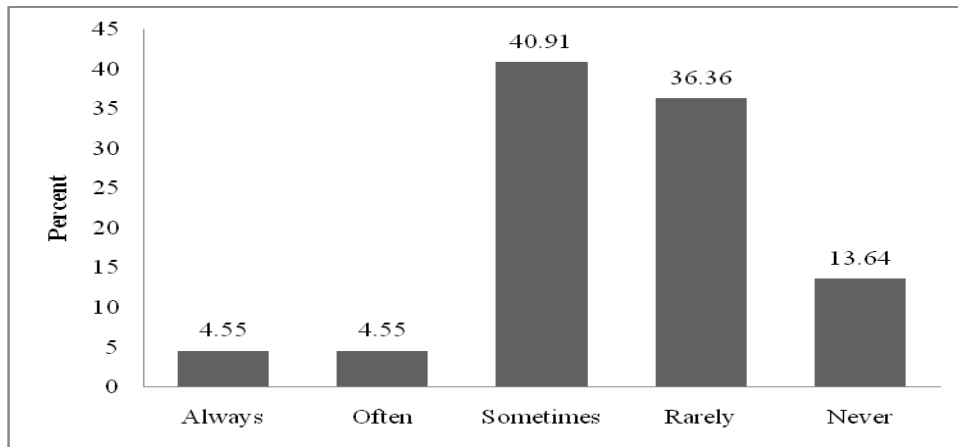
The teachers took cognizance of the learners’ diverse backgrounds. They noted that the learners’ learning abilities were also different. Furthermore, they noted that the learners in their Physical Science classrooms came from different backgrounds. Some of them were not used to the use of English as an exclusive medium of instruction. Slow learners were reported by the teachers as being unable to understand all concepts in English until a translated version in the mother tongue was presented.

**g) Learners requested the teachers to explain in the mother tongue**

The teachers were also asked whether the learners code switched in the Physical Science lessons and whether they were, further, asked to give reasons why learners in their Physical Science classrooms code switched. Finding out why the teachers thought their learners code switched in Physical Science classrooms was also considered to be essential for this study, as it might shed some light on how the teachers addressed their students’ code switching. Teachers at times realised that the learners did not understand and hence the teachers supplemented their explanations in English with mother tongue explanations. Learners’ code switching was also part of the reason why the teachers code switched. It was also a way of showing the teachers that the learners did not understand the taught content.



The teachers were asked in the questionnaires to indicate whether learners had ever asked them to explain Physical Science concepts in mother tongue by indicating how frequently the learners made such requests. The respondents' responses were categorised onto a five level scale ranging from Never to Always. Figure 7 presents the teachers' responses.



**Figure 7: Learners requested teachers to explain in mother tongue (N = 22)**

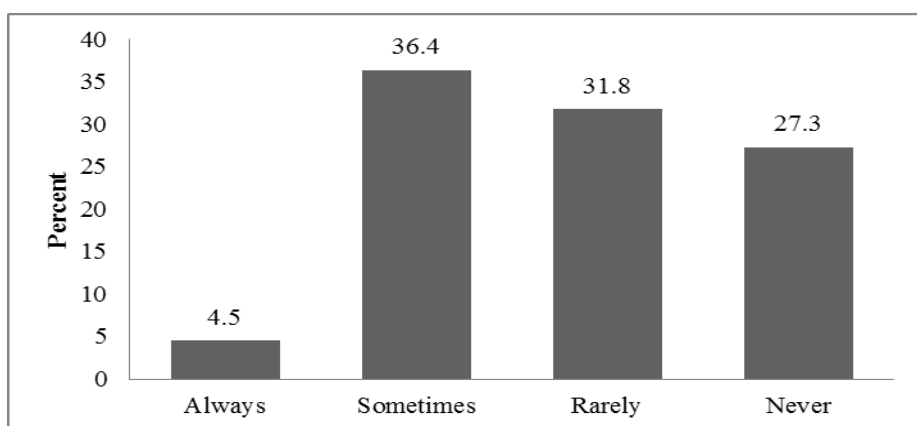
It can be seen from Figure 7 that 86.37% of the respondents indicated that their learners asked for mother tongue explanations. Figure 7 shows 40.91% of the teachers chose that, “sometimes” learners requested explanations and another 36.36% chose that their learners “rarely” requested mother tongue explanations. The teachers that reported that they “always” and “often” got requests from learners to explain in mother tongue were 4.55% respectively while 13.64% reported that they ‘never’ got such requests from learners.

This data revealed that over 80% of the teachers said that learners required them to present some explanations in their mother tongue. One of the reasons for the teachers' code switching was

when they complied with the learners' request for them to explain some Physical Science concepts in mother tongue.

#### **h) Learners' use of mother tongue in answering Physical Science oral questions**

The researcher wanted to find out whether the learners gave oral answers in mother tongue during the Physical Science lessons and the extent to which it happened. Their answers are given in Figure 8.

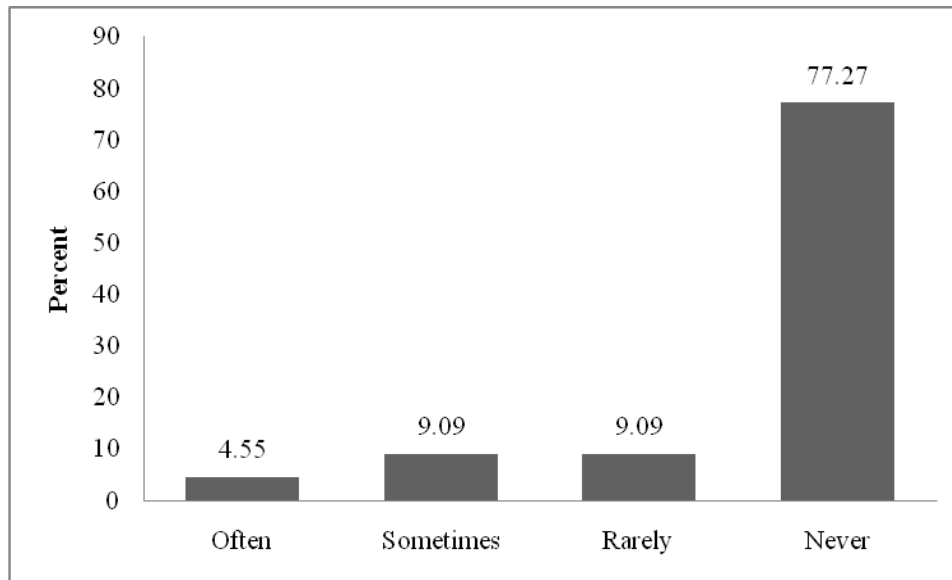


**Figure 8: Learners use of mother tongue in verbal responses (N = 22)**

From Figure 8, 4.5% of the respondents said that their learners “always” gave oral responses in mother tongue during Physical Science lessons, while 36.4% of the teachers stated that their learners “sometimes” gave verbal answers in mother tongue and 31.8% of the teachers’ responded that their learners “rarely” used mother tongue in spoken Physical Science answers. Therefore, the majority of the teachers (72.7%) indicated that learners at times gave oral mother tongue in Physical Science. The remaining 27.3% of the respondents indicated that their learners never gave oral responses in mother tongue during Physical Science lessons.

**i) Learners' mother tongue use when answering Physical Science written activities**

In the quest to explore the extent to which code switching was practiced in the Junior Secondary Physical Science classrooms in the Oshana Education Region, the researcher asked the teachers to indicate whether their learners code switched in their written Physical Science activities.



**Figure 9: Learners used mother tongue in written Physical Science work (N = 22)**

Figure 9 shows that 77.27% of the respondents answered that they had never come across mother tongue answers in their learners' written work. About 9.09% of the respondents said that their learners "sometimes" used mother tongue in written activities. Another 9.09% admitted that it happened "rarely" while 4.55% revealed that their learners "often" code switched in their written activities.

A few (22.73%) of the teachers said that learners used the mother tongue in written activities. Although the teachers indicated that the learners at times requested them to explain in the mother

tongue and that the learners sometimes answered the oral questions in mother tongue, the learners appeared to have been aware that they were supposed to write in English only. The report on the JSC examinations confirmed that the learners, indeed, answered in languages other than English in their national Grade 10 Examinations. The following cautions appeared in the 2007 and 2008 JSC examiner reports respectively. “Candidates are also strictly reminded that they need to answer only through the medium of English” (MoE, 2008, p. 178). “Repeatedly students must be reminded that they need to answer only through the medium of English...” (MoE, 2009, p.182). These constant reminders indicate that some learners used languages other than English in the examinations which triggered the examiners to encourage the teachers to remind their learners to, strictly, answer in English when they write examinations.

#### **j) More reasons for code switching in Physical Science classrooms**

Teachers provided more reasons for using code switching than those that were listed above. Some were: *ensuring active participation of the learners in the lessons, for learners to enjoy the lesson, to make teaching and/or learning easier and to enhance the learners’ performance in Physical Science*. These were evident following responses:

*“All learners should be able to participate in lesson...”*

*“...so using now Oshiwambo it will be really important and it is bringing out, uhm outmost results in the subject.”*

*“...they find it easier like in written activities, they end up answering easily rather than me just explaining in English then they’ll even end up even not answering what I’ve taught them.”*

*“The learners need to understand first in their vernacular as well as in English so that they’ll understand and they’ll write correct answers in exams. Also for them to enjoy the lesson to when they lesson is using their mother tongue too.”*

*“...to explain something in your vernacular language it is easy because whenever you know something in your vernacular language it is easy to translate it into another language.”*

The respondents listed more than ten reasons as to why they code switched. Notably, all reasons given were beneficial to the teaching and learning of Junior Secondary Physical Science. One question that needs an answer is: were such teachers wrong to violate the Language Policy by not sticking to teaching through the prescribed language of instruction, or were they right to code switch as a response to the demands of their classrooms?

On the reason that the teachers code switched as an effort to elicit active participation from the learners, Rollnick and Rutherford (1996) cited in Setati et al. (2002) view code switching as a powerful tool to explore the learners’ ideas. Without code switching, some of the learners’ alternative conceptions would remain uncovered. This view could also regarded code switching to be essential for addressing the learners’ misconceptions in Physical Science. Unfortunately such misconceptions might not be discovered in an environment where learners are not given an alternative language to express themselves in when they fail to do so in English. This outlook on code switching was also supported by the findings of the classroom observations of this study. It was observed that learners participated more in classrooms where the teachers code switched.

#### 4.2.3 Reasons for not code switching in Physical Science lessons

The 15% of the teachers (see Figure 4) that indicated in the interviews that they never code switched in their Junior Secondary Physical Science lessons also gave reasons to their choice of using only English as the language of instruction in their lessons. Their responses were as follows:

*“I do not code switch, I only use English. My learners mostly use English and that is how they know me. Even they meet me outside they know they can only speak to me in English. I have noticed that they use Oshiwambo like in group work but as soon as I walk to their group they change back to English.”*

*“During the lessons, I only use one language which is English. So to me, for the benefit of my learners I don't think if it is important to mix the languages and yet the subject itself is in English, it is of no use to use the mother tongues.”*

*“With me I do not switch to my mother tongue because number one: I was never taught in my mother tongue, so... and Physical Science terminology sometimes is very difficult to find in Oshiwambo. You may find learners looking for a word amongst themselves. They translate it into the mother tongue.”*

The teachers who said they did not code switch in their Junior Secondary Physical Science classrooms seemed to have chosen not to code switch. They indicated that Physical Science was in English and there was no point in using mother tongue. Using only English was beneficial to the learners, and Physical Science terminologies were difficult to be translated into Oshiwambo.

It was not, however, determined from these respondents whether issues like the low English language proficiency of the learners, learners' diverse academic abilities and backgrounds were also pertinent in their classrooms as the case with their counterparts who code switched. It was not, therefore, established from these teachers' responses how they handled such issues.

Two teachers revealed that their learners also knew that they (the teachers) only used English in their teaching. These teachers, however, acknowledged that their learners code switched amongst themselves but the teachers did not say how they handled the learners' code switching. One non-Namibian teacher stated that he did not understand the learners' mother tongue and as a result he never code switched, while the other did not offer any explanation. Learners' performance seemed to be of great concern to the teachers, and indicated that code switching would lead to poor learner performance.

Half of the 22.7% of the respondents indicated in the questionnaires that they never code switched during their lessons because they believed it had a negative effect on the learners' performance. The following views were mentioned by the teachers who indicated that they never code switched:

*"It has no use, otherwise learners will say, it is good to respond either oral or in writing in their mother tongue."*

*"It has negative effect on the learners performances."*

*"I do not think it will make sense to switch to mother tongue, as some words/terminology I do not know their meaning in mother tongue myself."*

One of the Oshiwambo speaking teachers who stated that she never code switched pointed out that her lack of proficiency in the mother tongue, which she attributed to the fact that she never studied her mother tongue at school, was the reason why she could not use mother tongue in her Physical Science teaching. Another native speaker of Oshiwambo considered it useless to code switch because the learners might copy that behaviour and code switch when they answered the questions in the written or oral activities. Code switching was also said to have a negative effect on the performance of the learners by one of the respondents.

The teachers were asked whether schools had policies in place that supported or prohibited the use of code switching in the teaching and/or learning of school subjects. The teachers had to choose either “yes” or “no” response. Most of the respondents (76.19%) stated that they did not have school (language) policies in place. Respondents from schools where policies existed (23.81%) described the policies as stating that only English was authorised for instruction except during Oshiwambo lessons. These respondents further stated that all the other subjects were to be in English. None of the respondents stated that it was punishable as per policy to use any other language other than English during lessons or general interactions.

After the teachers responded “yes” or “no” to the question on the existence of a school policy, the following follow up question was asked: *Briefly describe the school’s policy on the language to be used in teaching school subjects.* The schools with the language usage policies in place reflected the national Language Policy for Schools that stated that English should be the medium of instruction from Grade four upwards (MEC, 2000).



### **4.3 Theme 3: Advantages and disadvantages of code switching**

The findings about the advantages and disadvantages of code switching obtained in this study from the interviews and questionnaires only and are presented and discussed in this section. The researcher did not use the observations to collect information pertaining to the advantages and disadvantages of code switching as they were not easily observable.

#### **4.3.1 Advantages of code switching**

In order to answer the third research question of this study, the interview questions 5 and 6 asked for the teachers' views on what they considered to be the advantages and disadvantages of code switching. The responses about the advantages of code switching were similar to those given as the reasons for the teachers' code switching.

The following advantages were given by the teachers: *code switching aids understanding, code switching aids contextualisation of the Physical Science content, code switching catches the attention of the learners; code switching helps learners that have problems with the English language, code switching helps accommodate learners from different backgrounds and code switching increases learners' performance in Physical Science; Learners can better express their ideas and hence participate actively in the classrooms, it helps learners to develop positive attitudes towards the subject, it motivates learners to learn with confidence, learning is made easy and it made explanations clearer..*

Some of the teachers' interview responses were as follows:

*“Ja, as I have said already most learners they are not good in English. That's why we are trying to make them understand because of their foundation.”*

*“Code switching in Physical Science it really brings up a high performance especially and also the collaboration among now practical investigation and also in experiment doing the learners really participate if a teacher enable them to code switching.”*

*“Contributing to the understanding of content. All learners will participate.”*

*“Learners will be able to absorb the content.”*

Similarly, the respondents listed the following advantages of code switching in the questionnaires:

*“All learners will have an opportunity to part take in tasks, taking an example of discussions, experiments, problem solving and group work which foster high collaboration and creates good way of sharing ideas among individuals.”*

*“Code switching allow learners to participate actively in the lesson because every child is valued and need to be treated with dignity although they are not gifted equal.”*

*“Links medium of instructions and mother tongue.”*

*“It developing positive attitudes towards subjects understanding enabling learners to use the language with confidence for learning in school and in daily life. It [also] helps learners develop self-confidence and better understanding of the world in which they live.”*

*“Code switching helps Science learners to feel that learning science is part of their lives.”*

The teachers reported that the English language proficiency of the learners was low and that learners came from different backgrounds where they might have been used to having teachers who code switched. The respondents said that code switching was beneficial on the basis that it helped the learners to understand better as it clarified the concepts. This finding agrees with other findings (Gabusi, n.d.; Mouton, 2007; Probyn, 2005; Setati et al., 2002; Wolfaardt, 2005). Gabusi emphasizes that code switching can help the learners to better follow what the teacher is trying to convey to them, irrespective of whether code switching is used to clarify only one word, expression, a command/or an aim of the activity.

The teachers also stated that code switching helped the learners to express themselves and to participate actively in the lessons. In this study, learners participated more actively in the observed classrooms where the teachers code switched or allowed the learners to code switch. In a study carried out by Webb and Webb (2008); learners, engaged in group work, were asked about their low level of participation and one learner was reported to have answered that their dialogue was limited by them having to use the English language.

If learners’ expressions and participation in the Physical Science classrooms’ dynamics could be enhanced by code switching, then as the respondents indicated, code switching

could help the learners to develop positive attitudes towards Physical Science and consequently motivate them to be interested and eager to learn the subject. Mouton (2007) also found that teachers considered code switching to be an inspiration for learners to freely participate in lessons when they struggled to get the learners to respond freely. As Mwamwenda (1995) points out, teachers have to teach with an ultimate objective of motivating the learners intrinsically in order for the learners to engage in learning activities because of the pleasure and satisfaction that they get from the teaching and/or learning. Getting the learners to express themselves freely might just give the learners that pleasure and satisfaction.

Another advantage cited by the respondents in this study was that code switching helped the learners link Science to their daily life events, as well as linking the learners' mother tongue to English. This might help the learners construct new meaning (knowledge) from what they already know (Sert, 2005). The respondents' views were also in line with the concept of meaningful learning explained by Mwamwenda (1995) that, "Learning is said to be meaningful if it can be related to what the learner knows" (p. 218). Mwamwenda further applauds meaningful learning because it transfers what learners do at school to the real world. Some scientific processes can be explained in terms of some daily life experiences which, at times, learners can only relate to in mother tongue, as some words in mother tongue do not have equivalents in English. However, code switching to relate subject content to the real life activities might have an adverse effect on learning as some cultural terminologies do not have equivalents in English (Sert, 2005). In this way code switching

could create room for some misconceptions in the Physical Science classrooms and hence may have a negative effect on the teaching and/or learning of Physical Science.

#### **4.3.2 Disadvantages of code switching**

The teachers were asked to state the disadvantages of code switching in the interviews and questionnaires. The following disadvantages were given by the respondents: *‘Code switching makes learners lazy in applying English.’ ‘Learners will code switch when writing the examinations.’ ‘Learners lose confidence in the English language.’ ‘Code switching affects the perfection of the English grammar’ and that ‘learners will always expect the teacher to give a second explanation in the mother tongue.’*

The following were some of the responses given in the interviews:

*“In examinations, learners might end up writing in other languages in exams and it is not allowed.”*

*“...the learners will always expect the teacher to explain in vernacular but the teacher cannot explain into detail in vernacular as far as the science terms is concerned because we have to use science terms and sometimes you cannot explain them in mother tongue. Also ways learners pronounce the terms and can bring some damage to the spelling; learner might not get courage to write the correct spelling.”*

*“...and also it will discourage learners to learn how to spell scientific terminologies, they will always need to write it in their mother tongue. They might also undermine the teacher who teaches English because they will want to use Oshiwambo in English lessons.”*

*“Disadvantage in English, because question will be asked in English if you allow it too much to the learners then they’ll become lazy and they will not be able to express themselves in English.”*

The teachers in this study expressed caution that the learners might use mother tongue in the examinations which was not permitted. The respondents also feared that learners might become dependent on code switching and as a result neglect learning the English language which would negatively affect their English proficiency as well as their academic performance in Physical Science. Other reasons cited were that code switching made the learners lazy to learn and to use the English language; code switching would hamper the English communication skills of the learners, code switching would be time consuming and that code switching would make learners undermine the English language teachers.

Two teachers (9.09%) of the respondents did not associate code switching with any advantages in the questionnaires. They stated the following:

*“None, whatsoever, learners need to be taught in the medium of instruction.”*

*“I can’t see any merits of code switching.”*

Teachers expressed concern that if learners got used to the practice of code switching, they might code switch when they wrote the examinations. Although the majority (77.27%) of the teachers in this study indicated that their learners used mother tongue in written activities, the 22.73% of the teachers that revealed that their learners code switched in written activities (see Figure 8) at one point or another also corroborated the teachers’ fear. The examiner reports for the Junior Secondary Certificate (JSC) examinations had confirmed that learners indeed switched languages

when they wrote the examinations (MoE, 2007; 2008). However, there is no evidence as to whether the learners that used mother tongue in their examinations were from the classrooms where code switching was practised.

The substandard level of the English language proficiency of the learners which had been constantly lamented in the JSC examiner reports (MoE, 2006; 2007; 2008; 2009; 2010) could also be the reason why the learners switched to other languages in the examinations. Setati et al. (2002) recognise this dilemma of code switching as a means to aid access to meaning versus code switching as a stumbling block to accessing the English language, especially for assessment purposes. Setati et al. advise that code switching should be properly managed in the daily multilingual classrooms.

The respondents also raised concerns that code switching might cause the learners to become less eager to learn Physical Science through English as a medium of instruction. These concerns are supported by Sert (2005) who states that if learners get used to their teachers always following the English explanations with mother tongue explanations, the learners might lose interest in listening to the English language explanations and concentrate on the mother tongue explanations. Sert (2005), further, points out that if learners get accustomed to using mother tongue to avoid gaps in communication, it can result in the loss of fluency in the medium of instruction in the long run. However, Skiba (1997) counters that switching languages may provide an opportunity for the second language development because once the learner is provided with translations, a learning opportunity is created such that the learner will eventually require less switching.

The respondents in this study sometimes seemed to have interpreted code switching to mean translation only and at other times they appeared to have taken it to mean teaching solely in the mother tongue. For example: “...*the learners will always expect the teacher to explain in vernacular but the teacher cannot explain into detail in vernacular as far as the science terms is concerned because we have to use science terms and sometimes you cannot explain them in mother tongue.*” The respondent who gave this answer seemed to have deduced that a teacher who practices code switching would have to translate every English word used in the lesson into mother tongue. In a study conducted by Webb and Webb (2008), it was found that Mathematics teachers who mixed languages when teaching were reported to have mentioned the key words such as ‘diagonal’ and ‘parallel’ in English, followed by explanations in the mother tongue. Teachers in that study indicated that the results seemed more meaningful to the learners. Although the respondents in this study seemed worried that some terms could not be translated from English to the mother tongue, such terms could still be explained or simplified in the mother tongue without being translated.

#### **4.4 Theme 4: Impact of code switching on the teaching and/or learning of Physical Science**

This section presents and discusses the teachers’ views on how code switching impacts on the teaching and learning of Junior Secondary Physical Science. The findings were collected from the interviews and questionnaires.

The teachers were asked the following question in the interviews: *What impact do you think code switching has on the teaching and learning of Physical Science?* This question was aimed at gathering responses that would answer the research question number 4, i.e. *How does code*



*switching affect teaching and learning of Physical Science in Grades 8-10?* The teachers gave various answers that were grouped as: “positive”, “negative” and “neutral,” see Table 1.

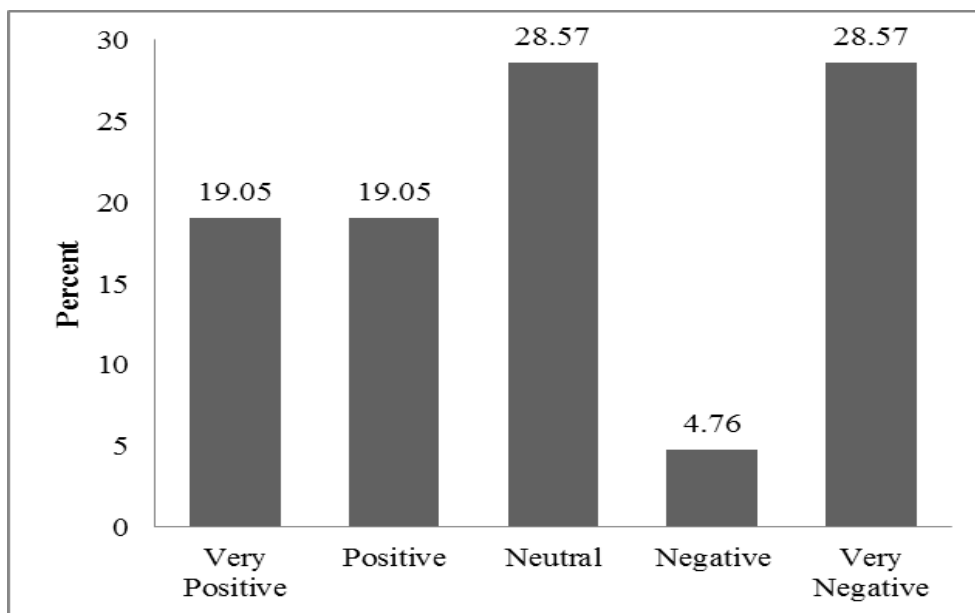
**Table 1: The impact of code switching on teaching and learning of Physical Science (N = 20)**

<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Positive	4	20
Negative	5	25
Neutral	11	55
<b>Total</b>	<b>20</b>	<b>100</b>

It is evident from Table 1 that the majority of the respondents (55%) indicated that code switching had a neutral effect on the teaching and learning of Physical Science. The neutral effect was seemingly chosen by the respondents that did not want to indicate any of the negative and/or the positive impact. Twenty five percent of the respondents indicated that code switching had a negative effect and 20% indicated that code switching had a positive effect on the teaching and/or learning of Physical Science.

The teachers also answered the following question from the questionnaire: *What impact do you think explaining in the mother tongue has on the teaching and/or learning of Physical Science?*

The respondents chose from the five options: very positive, positive, neutral, negative and very negative effect. Their responses are presented in Figure 10.



**Figure 10: The impact of code switching on the teaching/learning of Physical Science (N = 22)**

Figure 10 shows that 19.05% of the respondents felt that code switching had a very positive impact on the teaching and learning of Physical Science and another 19.05% stated that it had a positive impact. The majority of the respondents (38.10%) viewed code switching as having a positive impact on the teaching and/or learning of Physical Science. One respondent did not answer this question. In total 33.33% of the respondents (i.e. 4.76% “negative” and 28.57% “very negative”) viewed code switching having a negative impact on the teaching and learning of Junior Secondary Physical Science, whereas 28.57% of the respondents indicated that code switching had a neutral impact on the teaching and/or learning of Junior Secondary Physical Science.

#### **4.4.1 Positive impact**

One teacher that believed code switching had a positive impact in the interview supported her decision with the view that code switching aided learners to get a better understanding of Physical Science. Furthermore, the respondent stated that if she taught only in English, the learners might give irrelevant answers. This was evident from the following extract from this respondent's answer:

*"...if I explain it in their mother tongue...They end up answering easily ... just explaining in English then they ... end up not answering what I have taught them. ... if I explain in their vernacular language, it is more easier for them to ... formulate their sentences later in English because sometimes ... you explain in English but ..., they answer things which are not even related to what you asked, showing they did not understand ... So it is easy for me to explain in Oshiwambo and tell them they should write in English ... that is the policy of the subject."*

Another respondent explained the impact of code switching in Physical Science lessons on the learners' self-expression and self-confidence:

*"It gives the floor for learners to express themselves without fear, because they will be confident. They are speaking in their own language, they do not need to stammer upon certain words which they do not understand and they will just say it the way they see it and that becomes very useful to them. It is also a way to give them morale, a boost; that I am also recognised because mostly the majority of the learners when they sit in class is not that they don't know, it is how they can explain things so that it can be clear to other people. Sometimes others are scared they will be laughed at. That act of being ashamed."*

These respondents believed that explaining the Physical Science concepts in mother tongue had a positive impact on the learners because knowing something well in the mother tongue would contribute to better understanding of the same thing in English and that understanding some concepts in mother tongue helped the learners to relate what they have learnt to practical daily life examples. The respondents revealed that a confusing topic would be better understood if it was clarified in mother tongue.

The respondents gave the following reasons in the questionnaires for having indicated that code switching had a positive impact on the teaching and learning of Junior Secondary Physical Science:

*“Because it makes expressions easy to interpret and open up learner’s mind”*

*“Once you know something in your local language, it will be good for you to explain/describe very well in English.”*

*“Sometimes the mother tongue enables learners to understand the concept very well, since they can use practical examples from home.”*

*“It does not have an effect but due to the Language Policy it prohibited.”*

The teachers’ reasons supporting the view that code switching had a positive impact on teaching and learning Physical Science agree with those found in a study carried out by Webb and Webb (2008). They found that allowing learners to code switch in Mathematics classrooms increased their reasoning skills and has a positive influence on generating

mathematical understanding. All the reasons and the advantages of code switching, such as explaining and clarifying new concepts, connecting subject contents to real life, emphasizing key points as well as using code switching for enforcing discipline and affective purposes as cited in the teachers' responses as well as by various researchers (Mouton, 2007; Setati et al., 2002; Probyn, 2005; Skiba, 1997) indicated that code switching has a positive impact on teaching and learning.

#### **4.4.2 Neutral impact**

One respondent pointed out that although code switching played a role in promoting the learners' cultural identity, learners might code switch when answering examinations which would negatively affect their performance. Another respondent also stated the implications of code switching on national examinations. This respondent mentioned that the teachers were forced to use English due to the fact that the examinations were in English. The following opinions seemed to show mixed feelings about the impact code switching has on the teaching and/or learning of Physical Science.

*"...If you happen to go just using your mother tongue ... the question paper which is coming in English the kid will started stranded because they did not translated it. ... the question paper is set up basically to all the regions ... not set up our own question paper whereby we can assess our kids in our language that is the impact. So we use English because questions are in standard uniform they are writing the something that is why you are forced to use that language. Maybe writing in Oshiwambo you can explain in vernacular language and a child can ask you something in the vernacular language but you have to correct the child by using the correct word that is used in school and then again you have to make sure that the child is no longer going to*

*repeat the same mistake by asking to that because it's not mean if the child is asked in Oshiwambo is pretended, is just that he does not know the proper word they suppose to use..."*

*"You know that mother tongue sometimes they say it is really important because whenever you are not respect your language it means you do not respect your culture. In a culture we need to know our mother tongue although we cannot able to use in 'dairy' because all the subjects are in English except Oshiwambo. The impact could be very poor, because the questions are not asked in mother tongue."*

The 28.57% of the respondents, who were neutral in their questionnaire responses, also indicated that explaining in the mother tongue made learners understand Physical Science better but, they noted that it affected the learners' English language proficiency. The following were some of the of teachers' neutral responses:

*"It can help learners to get an understanding of what is to be learned. But then, it also makes it difficult for learners to express it in English."*

*"Nowadays Physical Science is considered as the major subject for national development."*

*"To less extent helps average class understanding the concept. To great extent it may not benefit learners as it denies them scientific terms usage."*

*"It will help learners understand Science terminology thoroughly and be able to understand the subject content better."*

The respondents who were neutral indicated that they were in some sort of a dilemma. This was evident in their given reasons in which they stated how code switching improved the understanding of the learners but it was against the national Language Policy. This made the respondents seem like they were caught between concentrating on the benefits of code switching to make their learners understand the Physical Science content and at the same time anxious that learners would code switch in the examinations, which could result in poor performance. In agreement, Setati et al. (2002) found that teachers continually judge when to switch between English and mother tongue in order to enable learners to make sense of the concepts or topics under discussion while at the same time they constantly judge when to push the learners' reception and production of the content in English which ultimately will be the language in which the subject is going to be assessed.

#### **4.4.3 Negative impact**

Twenty five percent of the teachers that indicated in the interviews that code switching had a negative impact on the teaching and/or learning of Physical Science expressed fear that the learners might code switch in examinations and tests. The teachers indicated that the Junior Secondary Physical Science examinations and tests ought to be answered in English only and therefore learners would have their mother tongue answers disqualified. The teachers' responses also stated that code switching made learners lazy and dependent on mother tongue explanations such that they would always expect the teacher to switch to the mother tongue. The following answers attest to these:

*“Learners will grow up with a tendency of expecting that the teacher will always give it to them in Oshiwambo if they do not understand it in English. As a result now all the other subjects are taught in English except the mother tongue. Code switching will have an impact on them, I think we already have a problem with learners misspelling English words. They write as if they are writing Oshiwambo, so that is a very bad impact and also when they go to university or polytechnic you will never find them being taught in mother tongue.”*

*“It has a bad effect. If the teacher code switching, then the learners will repeat like the teacher doing either in test or exams also in the test they can writing in the vernacular language. Also when you mark, you cannot give them marks.”*

About 33% of the respondents in the questionnaire believed that code switching had a negative impact on the teaching and learning of Physical Science. This was because they believed that it led to the learners’ poor performance in the Physical Science examinations. In addition, the respondents said that code switching brought a challenge to their classrooms as some scientific concepts and terminologies cannot be explained in the mother tongue. This was evident from the following responses:

*“it will encourage learners to use their mother tongue even at high school and high institution which is not proper at all.”*

*“...those learners might be use in responding in their mother tongue even in exam. This might even worsen the curiosity in learning English language, they will not be good in this subject area.”*



*“To avoid failure rate in Science, let learners understand that Physical Science could not be able to teach in mother tongue... foreign teachers never teach learners in their home language... go for further study at overseas where people communicate in English, who will interpret of the matter?”*

*“Learners will find difficults to write and answers question which will lead to failing.”*

It was found from both the interviews and questionnaires that the teachers were worried that code switching might negatively affect the learners' level of English language proficiency. The respondents expressed a fear that the learners might become dependent on code switching and hence would not pay much attention to the English grammar and vocabulary. Another issue that the teachers expressed concern with was that code switching would disadvantage the learners when they go to the senior secondary and tertiary phases of education. The teachers assumed that code switching would not be a common practice at those levels and thus felt that learners should be trained to get used to the use of English as the medium of instruction.

Explaining in the mother tongue was further believed by the respondents to potentially confuse the learners as they would be instructed in the mother tongue and expected to respond in English during the examination. Furthermore, it was indicated that explaining in the mother tongue would make it difficult for the learners to express themselves in English.

The respondents explained that code switching would cause the learners to fail the examinations as they might experience difficulties in expressing themselves well in English.

Learners who knew that they would always get mother tongue explanations might lose interest in the medium of instruction and this may subsequently result in poor performance (Sert, 2005). However, other studies have found that the use of the mother tongue of the learners during the teaching and learning enhances their achievement (Probyn, 2005; Setati et al., 2002; Webb & Webb, 2008; Wolfaardt, 2005).

#### **4.5 Theme 5: The teachers' perception about code switching**

The researcher sought to find out how the Junior Secondary Physical Science teachers perceived the phenomenon of code switching in their Physical Science classrooms. The findings on the teachers' perceptions about code switching during the interviews were gathered from their opinions on whether code switching should be allowed to be common practice in Junior Secondary Physical Science classrooms. The respondents were also asked to express their general feelings on the subject of code switching in Junior Secondary Physical Science classrooms.

##### **4.5.1 Teachers should/not be allowed to code switch in Physical Science lessons**

The teachers' responses to the interview question on whether code switching should be allowed to be common practice in Junior Secondary Physical Science classrooms were grouped into: "Yes," "No" and "Neutral" responses. The number of respondents for each of these categories is indicated in Table 2.

**Table 2: Allow teachers to code switch in Junior Secondary Physical Science classrooms (N = 20)**

<b>Category</b>	<b>Number</b>	<b>Percent</b>
Yes	12	60
No	4	20
Not sure	4	20
<b>Total</b>	<b>20</b>	<b>100</b>

More than half (60%) of the respondents were of the opinion that code switching needed to be allowed in Physical Science lessons. The remaining 40% of the respondents were equally split into 20% that indicated that they did not think code switching should be allowed and 20% were not sure on the matter.

The following were some of the respondents' answers in favour of code switching to be allowed in Physical Science classrooms:

*“Yeah, it should be used because eh, as i have seen so far , not all the learners have the same background, so we have like at our school, we have learners from different backgrounds and it is really affecting the performance of the learners, therefore it will be good for accommodating the background of the learners by code switching”*

*“In my opinion yes; understanding, makes it easier for understandable explaining even in the lesson since we're not English people and if you look at some of the countries, like Chinese*

*they're using their language, let's say you're now talking of experimenting and you are telling them 'do this and do that,' learners do not follow that much."*

This respondent (one of the teachers that were observed to have code switched 'almost every time') further said that some of the terms used in Junior Secondary Physical Science were scientific and relatively new for the learners, especially those at the Grade 8 level. The respondent preferred to use 50% of English and 50% of Oshiwambo in her teaching, because learners might understand better as they might have been used to their teachers at the Upper Primary level mixing English and Oshiwambo. This participant further explained that if she used English throughout the whole lesson, she would end up having just few learners that understood her.

However, only 42.86% of the respondents who responded to the questionnaires felt that the Junior Secondary Physical Science teachers should be allowed to code-switch. This was 17.14% less than the respondents who wanted code switching to be allowed during the interviews, an indication that some teachers changed their opinions on the issue during the interviews and in the questionnaire. Some of their answers were as follows:

*"To clarify the concept and to capture learners attention."*

*"To help learners understand the lesson well, especially the slower learners who always struggle with English language to achieve the lesson objectives, to be active participant in the learning process and take responsibility for their learning."*

*"To ensure that learners fully understand the lesson & express themselves."*

*“It helps learners in most cases and when they answer in written work in examination they do it in English is more easier and understandable.”*

The respondents stated that code switching should be allowed in Junior Secondary Physical Science classrooms to ensure that learners fully understood the lessons and could express themselves clearly. Using the mother tongue was considered by the teachers as useful in clarifying concepts and in the capture of learner’s attention.

The ‘neutral’ respondents’ reasons on whether code switching should be used in Physical Science classrooms included the following:

*“I’ll say the chance is 50/50. Yes it can be allowed due to the fact that it would motivate many learners to do the subjects without hating it. On the other hand you know, most of the information that is written in a lot of books is either in Latin or English and sometimes people may face difficulties in translating those information that are scientifically to make/ or name them into Oshiwambo.”*

*”Yes. Well I can’t say it should be allowed like in our society now as you see we’re not part of one tribe, we mixed up. If we say it should be allowed then we also exclude some of the tribe, therefore I won’t say it should be allowed unless something must be done like we have dictionary for... so there must be another whereby the term in science will be translated to an all the language so that when kids are reading..... in the dictionary he can see what does it mean in their language. It can also help the same as the teacher because sometimes you can assist such*

*as a syllabus there's one who you can't assist yet because of the language, we are not speaking the same language."*

In the questionnaires, the respondents could only choose between yes and no options to the question of whether code switching should be allowed in Physical Science classrooms. In the interviews, the respondents were asked an open ended question to explain whether teachers should be allowed to code switch and those that gave both yes and no explanations were considered to be neutral.

The following were some of the respondents' interview responses which were against the idea of allowing code switching to become common practice in Physical Science classrooms:

*"On my side, I don't think it's a good thing to be implemented. Because learners are not only going to end here and they are not only going to study in Namibia. Some of them will, have a difficulty in communication or in understanding questions or understanding or just the concept to be taught."*

*"It must not be allowed for reasons I said earlier such as kids are just having a tendency that if I don't understand I can always go back. Whether it is now national exams or exams at school, you find them quoting back in the exams."*

From the questionnaires, 57.14% of the respondents were opposed to allowing teachers to code-switch. The following were some of the respondents' answers:

*"It will confusing the learners"*

*“It give a bad example to the learners. i.e. learners will respond in their mother tongue.”*

*“Learners will be negatively affected by code switching and they did not perform well in written activities.”*

*“Because the policy does not allows teachers to teach in their vernacular language, only English as a medium of instruction.”*

In both the interviews and questionnaires, the respondents stated that although code switching could be beneficial to both teaching and learning, it might lead to the learners experiencing problems with the English language which could end up affecting their learning and performance badly as the Physical Science books were all written in English. Another worry that the teachers had was that if they code switched, their learners would copy the teachers’ code switching habits as well as be dependent on them and carry them to the higher phases of education. The respondents further raised a concern that code switching might cause tribal divisions in schools because it would make it difficult for learners to attend schools where their mother tongue was not used. In the light of these views, these teachers felt that teachers should teach in English as per the Language Policy.

Although the respondents indicated in Section 4.1.2 that code switching was prevalent in their Junior Secondary Physical Science classrooms, they still insisted that it should not to be allowed. It is quite puzzling that the teachers provided contradictory responses. The findings showed that code switching was prevalent in the Oshana Education Region, also 63.64% of the respondents answered that it was better to teach the Junior Secondary Physical Science in English with few explanations in mother tongue which was an indication of the teachers’ level of support for code

switching (see section 4.5.6). The teachers code switched, but they did not want to be allowed to code switch. They preferred to teach in English primarily but with some mother tongue explanations which is code switching.

The inconsistencies in the teachers' responses regarding the issue of allowing code switching in the Physical Science classrooms might be an indication of how unsure they were about the use of code switching in their lessons. More than half of the teachers (58.3% from the observations, 77.3% from the questionnaires and 85% from the interviews) were found to have code switched in their Physical Science lessons, one would have expected them to advocate for code switching to be allowed. Setati et al. (2002) also found that teachers felt that code switching should not be allowed although they admitted to have practised it, which they said they only did to attend to the learners' need to understand the subject matter. The respondents in this study pointed out that the Language Policy guided them to teach in English and not code switch.

One teacher stated that if learners were allowed to code switch, learning would be made easier as opposed to forcing them to use English only, which appeared as if they were being punished. This finding is consistent with what was reported by Van der Walt, Mabule, and de Beer (2001) that a teacher who insists that learners use the second language will encourage a 'parrot-like language' which limits meaningful learning. Van der Walt et al. further maintain that such insistence for the learners to strictly use the second language also limits the linguistic ability of the learners to discuss tasks in the second language.



In the next sub-sections the researcher presents the findings from the questionnaire items that addressed the teachers' perceptions on the issue of code switching in Junior Secondary Physical Science classrooms.

#### **4.5.2 Learners should/not be allowed to code switch during Physical Science lessons**

The respondents were asked to choose whether learners should be allowed to code switch in Physical Science lessons and also provide reasons for their choices. Eleven (50%) of the respondents supported allowing learners to code-switch, ten (45.5%) opposed the idea and one (4.5%) did not respond to the question. Some of the respondents' answers were as follows:

*“They want to understand the scientific term and they learn better if they understand it in their mother tongue.”*

*“Most learners are poor in English language, they cannot express well their meanings in English although they understand the concept they thinking. Learners translate from mother tongue to English.”*

*“To make a lesson clearly understandable to learners, for them to be able to use what they learnt in future.”*

*“They need to understand firstly in mother tongue and later in English. In case of slow learners be allowed to code switch.”*

The respondents indicated that if learners were allowed to code-switch, it would allow them to learn more easily when they were allowed to use their mother tongue than learning in English only. It was also indicated that allowing the use of mother tongue in Physical Science lessons

would help learners understand the scientific terms better, and even learn English more easily. Slow learners it was said would also be well accommodated to participate in the lessons where they were allowed to code switch.

The 45.5% of the respondents countered that learners should not be allowed to code switch in Physical Science lessons. Their reasons were:

*“They might never be able to communicate and answer questions in English which will disadvantage them in their school carrier. They will never progress.”*

*“They will tend to like to be taught in that language and engnore the official language.”*

*“Because they need to converse in English when sharing ideas on certain activities. The more they learn from one another.”*

*“To motivate them to keep on communicating in English even in their future not only during Physical Science lessons.”*

*“No, but me I allow them so that they will familiarised themself to what already known rather then punish them to learn something that mean stranger to them, but in reality they know it.”*

One of the respondents though contradicted herself. She said that learners should not be allowed to code switch in Junior Secondary Physical Science while at the same time stating that she would allow them to do so.

Other than the views related to the learners’ English language proficiency, the teachers further stated that code switching would hamper the learners’ progress, and would be confused as to

which language to apply if languages other than English were used in the classroom. One non-Namibian respondent however, stated that he would not understand the learners' vernacular language.

#### **4.5.3 Teachers' responses to the learners' requests for mother tongue explanations**

The researcher hoped that the manner in which the teachers responded to the learners' requests to explain in mother tongue could also shed some light on how they perceived code switching. In section 4.2.2; 19 out of 22 (86.36%) of the respondents indicated that they got requests from learners in their Junior Secondary Physical Science classrooms to explain in mother tongue.

Eleven (50%) of the 22 teachers indicated that they explained in the mother tongue when the learners asked them to. Seven (31.82%) of the respondents stated that they only explained in English and four (18.18%) answered that they used simple English to explain when asked by the learners to use mother tongue. One of the four who used simple English in their explanations indicated that she encountered difficulties with the learners' mother tongue which was different from her own mother tongue.

The following answers were stated by the respondents who responded positively to the learners' requests to explain using mother tongue:

*“If in any case they request for explanations in mother tongue, obviously I have to attend to the needs of that/those learners and make sure they are satisfied with what an individual would like to know and their needs are met.”*

*“I accept them as they request me to do, but I will do it rarely because of the slower learners who do not understand the English very well, assist them to achieve equal lesson objectives and also basic competencies.”*

*“I respond in positive ways because it contribute to understand the subject matter.”*

*“I am not a native speaker so I try to simplify my language as much as I can to give clear and simple meaning related to their surrounding.”*

The proponents of code switching said that the ultimate goal was to train the learners in the English language and cultivate confidence in the learners in its use. They further stated that they used different approaches, such as speaking slowly and in simple English and by using alternative means of explaining such as drawings. If understanding was not achieved after such attempts, teachers said that they used mother tongue as the last resort. Others, however, revealed that they complied with the learners’ requests and explained in mother tongue.

The respondents that did not explain in mother tongue upon their learners’ requests stated that:

*“I cannot explain in their mother tongue because learners have to understanding the language of science in the right context and is difficult for to express scientific terms in mother tongue which leads to misconceptions.”*

*“I always tell them that they should not expect me to explain issues in other language because exams will be in English. But sometimes I tell them to that it will not help them for a teacher to explain issues in other languages then the official language.”*

*“I used to tell them about the language school policy that states that all the subjects need to be taught in English include Physical Science, I therefore tried to explain all the concept in English.”*

*“I did not even understand any of the Namibian language... as a foreigner in this country.”*

The respondents opposed to code switching explained that they maintained their interactions with the learners during their lessons only in English as the official medium of instruction. They further indicated that they did not switch to the mother tongue even when the learners asked them to; instead, they asked the learners who understood to explain to the others in the mother tongue. Furthermore, these respondents mentioned that they always maintained the English language usage in their classrooms as per the school policy. Both proponents and opponents of code switching, however, said that their wish was to have their learners avoid using mother tongue in answering the examination questions.

#### **4.5.4 Teachers’ responses to the learners’ answers spoken in mother tongue**

Nine (40.9%) of the respondents in favour of code switching mentioned that they corrected the learners by saying back the answers in English and then encouraged them to respond in English always. The following were their answers:

*“I will guide them to speak or answer questions in English as medium of instruction because Physical Science textbooks are prescribed in English language. Encourage them to speak the language even though they are not so perfect in language. In the exams, they are not going to answer the questions in mother tongue, but in English.”*

*“I will correct them, what does it mean in English and tell them that they are correct but, try to speak it in English.”*

*“I try to motivate the learners at least to express themselves in English since the subject deliverance is done in English.”*

*“I accept the answer when correct and give him/her the correct answer in English.”*

*“Acceptance could outmost work, a class being a learning environment whereby learning takes place between a teacher and the learners. It is of value to translate the answers of learners from their mother tongue to English and in that way successful learning takes place.”*

The respondents that complied with the learners’ requests for mother tongue explanations also indicated that after they had explained in Oshiwambo, they sometimes asked the learners in the class to repeat those explanations in English. One respondent stated that she encouraged the learners to use English because it was the language that the examinations would be written in.

Ten (45.5%) of the respondents who were not in favour of the learners’ oral responses in mother tongue in the Junior Secondary Physical Science classrooms gave the following responses on how they dealt with such learners’ answers:

*“I always discourage them not to respond in their mother tongue because exams questions will be in the official letter. I sometimes accept those responses, but I always tell them not to use their mother tongue.”*

*“I don’t give them room to talk in mother tongue and they know it.”*

*“I discourage them because it does not allowed.”*

*“I tried to encourage them not to speak mother tongue in and outside during and after the Physical Science lesson.”*

*“I always force them to answer questions in English.”*

The respondents opposed to the use of the mother tongue revealed that they maintained the English language usage at all times and discouraged the learners from the use of their mother tongue because it violated the Language Policy and that English was the language used in the examinations. The teachers also said that they encouraged learners to avoid mixing languages as an attempt to perfect the learners' fluency in the English language.

#### **4.5.5 Teachers' responses to learners' written work in mother tongue**

Only five (22.73%) of the respondents indicated that learners sometimes used the mother tongue in Physical Science written activities (see Figure 8). Three (13.6%) of these respondents stated that they translated the learners' answers into English. This was evident from their responses:

*“I give a tick but when its come to the marks I will not penalised that particular child unless that word does not exist in English.”*

*“I often correct learners mostly in challenging words.”*

*“I write the correct word instead of the written mother tongue answer and tell them to consult dictionaries to empower their vocabularies.”*

These teachers explained that they did not punish the learners for using the mother tongue in their written Physical Science work. They marked the mother tongue parts of the questions as right or wrong while replacing the vernacular words with the correct English words. One respondent stated that she encouraged the learners to use a dictionary to expand their vocabulary. These respondents believed that the learners could be corrected while giving marks as a method of reminding them how they should be doing it and encouraging them to use more English in written exercises.

The remaining two (9.09%) of the teachers indicated that they discouraged the learners writing answers in the mother tongue. Their responses were as follows:

*“Trying to discourage them.”*

*“I always penalize them for doing that because I want to discourage that tendency of them using mother tongue.”*

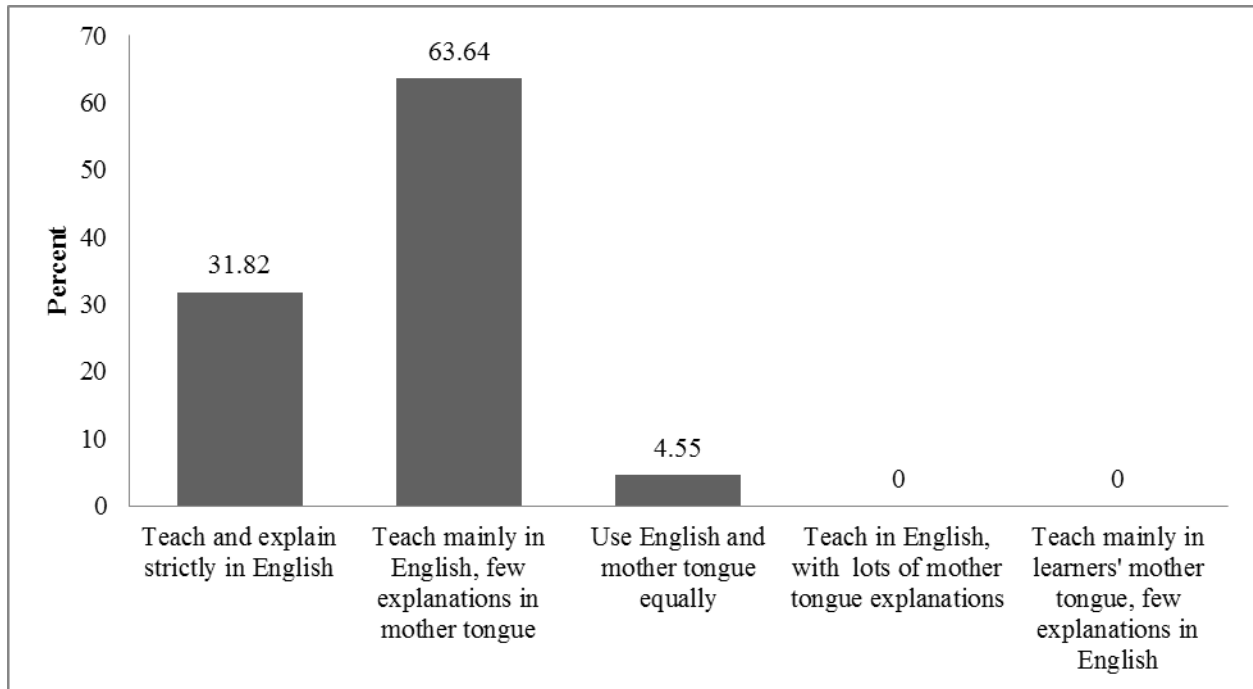
One respondent indicated that he did not award the learners any marks for answers written in mother tongue. This was a measure taken to train the learners to get used to writing in English and discourage them from writing mother tongue answers.

These results indicate that there was no clear guidance to the teachers on how to handle the learners' answers that were written in mother tongue. It was not established in this study whether the learners' tendency to code switch in written activities changed after the teachers assessed their work.



#### 4.5.6 Best way of using language in Junior Secondary Physical Science classrooms

The respondents were asked to indicate how best language could be used and handled in Junior Secondary Physical Science classrooms. Figure 11 shows their responses.



**Figure 11: Best way to use language in Physical Science classrooms (N = 22)**

Figure 11 shows that 63.64% of the respondents were in favour of teaching mainly in English with a few explanations in the mother tongue, 31.82% of the respondents supported teaching exclusively in English and 4.55% wanted English and mother tongue to be used equally in the Junior Secondary Physical Science classrooms. None of the respondents supported teaching in English with a lot of mother tongue explanations and none of them supported teaching in mother tongue with a few explanations in English.

The respondents who preferred teaching Junior Secondary Physical Science in English with a few mother tongue explanations stated that the learners sometimes needed clarifications in the mother tongue to include the learners who did not understand English very well. Some of their responses were as follows:

*“Sometimes the teacher explain in English but there are some terms or words that the learners do not understand the meaning, therefore mother tongue help them to understand.”*

*“Same as 16” [To ensure that learners fully understand the lesson & express themselves.]*

*“This will help and enable the learners to understand the lesson well, to gain enough knowledge in Science ... Help learners to learn with understanding without memorising. Few explanations of difficult concept should be done if possible in mother tongue. They will all participate.”*

*“This then allows participation of those learners who lack confidence of expressing themselves in English. It will be good as it caters for all the learners’ need and as the outcome subject content mastery and its matter application.”*

The learners’ participation and meaningful learning was said to be enhanced by accompanying teaching Physical Science in English with a few mother tongue explanations when the need arose. The teachers, further, said they also took the learners’ backgrounds and learning abilities into consideration that would necessitate the mother tongue explanations in order for all learners to understand and participate in the lesson.

About 32% of the respondents supported the view that all explanations in the Junior Secondary Physical Science classrooms should be in English. The reasons given indicated that using English only in Physical Science lessons could support the preparation of learners for examinations. Some of these respondents' answers were as follows:

*“It will help learners to understand questions and give correct answers in English, because Physical Science questions be it an activity, test or examination are always in English.”*

*“Learners's external examinations is written in English. Communication with foreigner is in English. Media, Newspaper, Magazine and other sources are in English.”*

*“No code switch in Physical Science as stated in subject policy (Physical Science). Learner to acquire scientific knowledge well for future uses in English.”*

*“Teaching and all explanations to be done strictly in English and no other language should be used so that teaching and learning should be take place smoothly and learner acquainted themselves with the lesson.”*

The teachers that preferred teaching and learning to be only in English were concerned that the progress of the learners' English language proficiency might be hampered by the use of mother tongue in Junior Secondary Physical Science classrooms. They, further, mentioned that teaching exclusively in English would facilitate the acquisition of scientific knowledge. These teachers' views appear to show that they were contented with the current practice, which was determined by the Language Policy.

The remaining one (4.55%) of the respondents stated that using English and mother tongue equally would ensure that the learners understood the subject content better: *“Due to the fact that learners will be able to understand the subject content.”*

Probyn (2005) pointed out that the South African teachers’ attitudes toward the African languages as media of instruction have been adversely influenced by the language policies under the apartheid government. The same can be said about Namibia because although English does not have a colonial history in Namibia, “During the pre-independence era, the target language of learning (Afrikaans) undermined the self-concept and cognitive growth of the African language speakers. From this era the notion was born that the African languages are deficient and as a result resistance built up against the notion of mother tongue as medium of instruction in education (Wolfaardt, 2005, p. 2357).”

#### **4.5.7 Challenges faced by Physical Science teachers with regards to the use of code switching**

The respondents were asked in the interviews to mention the challenges that code switching would bring to their Physical Science classrooms. Some of the challenges cited included: Some learners in multilingual classrooms would be neglected since teachers may not be able to speak all learners’ mother tongues. Lack of Physical Science printed materials written in mother tongues was also mentioned as one of the challenges that code switching could bring to the Junior Secondary Physical Science classrooms as well as a lack of science laboratories at some schools.

On the question about what teachers considered to be challenges that code switching could bring to their classrooms; teachers stated that in multilingual rooms, code switching would neglect learners that did not understand the teachers' vernacular in multilingual classrooms. Although this was a genuine concern for schools that had learners that had different mother tongues, for this study all the learners understood Oshiwambo while only 13.64% of the 22 teachers were not Oshiwambo speakers.

#### **4.5.8 The teachers' views on code switching**

The respondents were asked to share their views on the issue of code switching in Physical Science classrooms and the following opinions were mentioned:

- There should be a dictionary of science in each of the vernaculars to allow learners to learn sciences in their languages.
- Code switching is a good idea but there should be strict rules to guide teachers when mother tongue should be used in Physical Science classrooms.
- Code switching facilitates teaching and learning of Junior Secondary Physical Science.
- Code switching helps soften the learners' experienced with difficulties in mastering terms and subject content.
- Code switching is time consuming.
- Code switching is automatically caused by the need to clarify concepts.

#### **4.5.9 Teachers' additional comments on code switching in Junior Secondary Physical Science**

The teachers repeated what they had mentioned for the preceding questions when they were asked to add “anything else” for the interviews. They reiterated their support or opposition for code switching. The proponents of code switching emphasized the following:

- Code switching would be good, but, the teachers should set boundaries on when and how it should be used.
- Code switching encouraged active involvement of the learners in the lessons.
- Code switching creates a conducive environment for teaching and/or learning.
- Shortage of materials at times caused teachers to code switch.
- Code switching may help the learners and teachers to overcome the barriers of understanding English language in Physical Science and lead to learners discovering new things.
- Code switching would promote Namibian languages and cultures.
- Code switching needs to be promoted.
- The Language Policy forces the teachers to use English.
- Namibian languages could also be used as media for instruction.

One respondent considered code switching as an empowerment tool to the Namibian national languages: “... like I said it is a cultivation issue which can empower many Namibians. As we know scientists are not all English speakers and therefore like the French have their own way of expressing themselves but the meaning will still be the same, so I feel it is ok...”

This respondent added that Namibians should use their languages to teach their learners and without having to rely “on foreign languages like English to give learners instructions”. He, however, recognized that it might be challenging “*because not all Namibians speak Oshiwambo*”, that’ll be a challenge. “*But if they say Science should be taught in any mother tongue ... such as Lozi or any other indigenous language in Namibia that’ll be very welcome to me because it will give a relief.*”

Another respondent that proposed the use of Namibian national languages as media of instruction said: “*I think it is good that you are doing this thing, this study. May be code switching will help us ... foreign Science teachers that come here... study science in their language but they present it here in English.*”

This respondent stated that the foreign teachers understood the subject content well in their language and were as a result able to present it in English. “*But for us if I put it in English and then I go and teach it in Oshiwambo the full lesson it become a problem because we are now in that line of the ministry that all subjects should be taught in English.*” She, further, stated that teaching Physical Science in the mother tongue would benefit the learners such that: “*Even our kids will be able to create things on their own with their own understanding because now what’s hindering them is the language.*”

One of the respondents criticized the Namibian national Language Policy for schools: “*...English is the medium of instruction ...kids are taught by the mother tongue like Grade 1 up to Grade 3 if I’m not mistaken. ... apart from that Grade 4 upwards, they are changing now they should be taught in English.*” This teacher stated that the learners got used to being

*taught all their subjects except English in the mother tongue when they were in Grades one to three. “Then all of a sudden when they go upper-ward they change, unless if the policy strictly change if you head to other parts of the country when you meet with other people they’ll tell you they just taught into their language...”*

She also suggested that English should not necessarily be the medium of instruction: *“Even yourself if you used to watch TV you can see even a president coming here we heard English is the medium wherever, is the international language but up to now I used to see some of the president, ... are just strictly talking to their language and they’re translated... Why those people they have doctorate but they are translated.”* This respondent stated that she thought that people from all countries used English and questioned the use of English in teaching Physical Science in Namibia: *“But why we are just forcing to the English although we are not English speaking? That’s also a problem may be if we were taught in our language, in our mother tongue then we know very well...”* She further pointed out that *“sometimes we do blame teachers are the failure because of their poor English we are not happy to that because we are just using, we also have our language that we understand very well but now we are forced to use the language because of that international but in reality we are also struggling.”*

The following points emanated from the teachers that were opponents of code switching:

- Code switching could contribute to the failure of learners as they might use it in the national examinations but not all markers would understand the learners’ mother tongue.
- Code switching would prevent learners from studying outside the country.



- Code switching would damage the learning and teaching process.
- The Language Policy does not allow teachers to use languages other than English.
- There are no Physical Science books written in mother tongue.

The following were some of the respondents' comments against code switching:

*"I think it will bring some negative impact on learning. It will damage the learning and teaching process because we are more learner-centre. Learners have to get information by themselves but if they do not get it, they will depend on the teacher to explain in mother tongue. We need to avoid mother tongue to bring in uniformity in schools. Learners need to improve their confidence in spoken English. Because learners sometimes have ideas but they fear of expressing them. So they do not participate in class I think code switching should be addressed with language teachers especially English teachers so that they can give the advantage and disadvantage of using the code switching or mixing language during lessons."*

*"Code switching is not good; I do not support the idea of using code switching in Physical Science."*

*"This current situation have no other options as I said earlier. That is so, even if you try to explain in your mother tongue to make them understand, as far as this policy is concerned we have no other options but to explain in English."*

When asked about anything else that the teachers wanted to share with the researcher, some of the respondents criticized the Language Policy. Some proponents of code switching pointed out that people in some of the countries used their native languages as the languages of instruction in

their schools and that Namibia should consider doing the same. The teachers that criticised the Language Policy indicated that it seemed as if English as a medium of instruction was imposed onto the teachers and they expressed their aspiration to have the native languages used as the media of instruction. However, there were still some reservations based on the fact that there were many languages in Namibia and it would not be fair to choose one language to be the medium of instruction above the others. Wolfaardt (2005) suggested that the Namibian Language Policy for schools needed to be revised. Wolfaardt made this suggestion in the light of the Asmara Declaration that advocates that, “All African children have the inalienable right to attend school and learn their mother tongues. Every effort should be made to develop African languages at all levels of education.” (Ellis, 2001 cited in Wolfaardt, 2005, p. 2366)

#### **4.6 Summary**

This chapter presented, analysed and discussed the findings of this study. Code switching by teachers was found to be relatively prevalent in the Junior Secondary Physical Science classrooms in the Oshana Education Region. The reasons for code switching included: to clarify scientific concepts to ensure that learners understood the subject content, to relate Physical Science to the daily life contexts, to cater for the learners’ diverse learning ability ranges, learners requested the teachers to explain in the mother tongue. Advantages and disadvantages of code switching in the Junior Secondary classrooms were also discussed as well as the impact that code switching has on the teaching and /or learning of Junior Secondary Physical Science. Finally, the teachers’ perception about code switching was also discussed, including the teachers’ general views on code switching.

## **CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY**

The preceding chapter presented the findings and discussion of the findings of this study. This chapter gives the summary, conclusions and recommendations emanating from the results of this study.

### **5.1 Summary**

This study was conducted to investigate code switching in the Junior Secondary Physical Science teachers in the Oshana Education Region. This study specifically intended to find out the extent to which code switching was practised by the Junior Secondary Physical Science teachers in their classrooms. It also investigated reasons for code switching, the advantages and disadvantages of code switching, the impact that code switching has on the teaching and learning of Physical Science as well as the teachers' perceptions about code switching.

The study sought to answer the following questions:

1. What is the prevalence of code switching in the Junior Secondary Physical Science in the Oshana Education Region?
2. What are the reasons for the Junior Secondary Physical Science teachers in the OER to code switch?
3. What are the advantages and disadvantages of code switching?
4. What is the impact of code switching on the teaching and learning of Junior Secondary Physical Science?

5. What perceptions do the Junior Secondary Physical Science teachers in the OER have towards code switching in their classrooms?

The study followed a mixed research design approach, where a sample of 22 teachers was drawn from 10 schools of the population of the Grade 8-10 Physical Science teachers in Oshana Education Region. In an attempt to get a representative sample of the population, stratified random sampling was employed. Triangulation was used by conducting lesson observations, administering questionnaires as well as conducting interviews to collect the data.

The findings from the observations, questionnaires and interviews revealed that code switching was prevalent in the Oshana Education Region in Grade 8-10 Physical Science classrooms. About 58% of the teachers code switched during the lesson observations, 85% admitted that they code switched during the interviews and 77.3% of the participants stated that they code switched in questionnaires. The study found that there were inconsistencies in the findings related to the prevalence of code switching in the Junior Secondary Physical Science classrooms in the Oshana Education Region from all the three research tools. These were evident from the different prevalence rates of code switching that were found by the different data collection instruments employed in this study.

The data also established that the Physical Science teachers code switched to different degrees. Some code switched almost every time, others code switched sometimes, some code switched rarely while others did not code switch at all. About 42% of the respondents did not code switch at all in their lessons during the observations, 15% indicated that they never code switched during the interviews and 22.70% said that they never code switched in the questionnaires.

Different research tools once more found discrepancies in the teachers' responses, an indication that the data provided by the teachers may not be a true reflection of their code switching practice.

The study found that many teachers code switched in their Physical Science classrooms due to the following reasons: The teachers' and learners' English language proficiency was low, to reach out to the varied learning abilities of the learners, to respond to the learners' code switching or as a response to learners' requests for the teachers to explain in mother tongue, to ensure understanding of the Physical Science content and to link what they were teaching to real life events. Teachers were also observed to code switch for general communication, for classroom management and for expressing emotions.

The findings revealed that some teachers did not code switch because the examinations would be written in English and they did not want the learners to code switch when they answered the national examinations as this would affect their performance. Another common reason for the teachers not to code switch was because code switching was not allowed by the subject policy and the national Language Policy. Most teachers who never code switched, however, revealed that their learners did code switch in the Physical Science lessons and they further indicated that the learners also requested the teachers to code switch.

The results of the study established the following advantages of code switching: Learners expressed their ideas well and participated actively in the classrooms activities, it helped learners to learn meaningfully, to develop positive attitudes towards Physical Science, motivated learners to learn with confidence, learning was made easier and explanations clearer.

In addition, the following disadvantages were identified: code switching made learners lazy in using English language, learners would code switch when writing the examinations and lose marks, learners would lose confidence in the English language, it would affect the perfection of the English grammar and learners would always expect the teacher to give a second explanation in the mother tongue after the explanations in English.

The teachers were found to provide inconsistent responses on the impact of code switching on the teaching and learning of Physical Science. It was found through the interviews that 55% of the teachers said code switching had a neutral impact on the teaching and learning of Physical Science, 25% viewed it to have a negative effect and 20% indicated that code switching had a positive effect on the teaching and/or learning of Physical Science. Different results were found in the questionnaires: 38.10% of the respondents said code switching had a positive impact; 33.33% said it had a negative impact while 28.57% felt it had a neutral impact.

The findings of this study further revealed that although the majority (85% in interviews and 77.3% in questionnaires) of the respondents indicated that they code switched in their Physical Science classrooms, the teachers had some reservations on the use of code switching. The teachers generally perceived the practice of code switching to be unacceptable. This was reflected by the inconsistencies in the teachers' responses. For instance, a teacher would indicate that code switching had a neutral impact on the teaching and learning of Physical Science and then give a reason that code switching was useful for the learners to understand the subject content. Some teachers also gave contradicting answers to the questionnaire and interview items on the same issues. For example, a teacher would respond that he/she never code switched in the

questionnaire, then turned around in the interview and revealed that he/she actually code switched. This was evident from the higher number of the teachers who indicated that they code switched in the interviews (85%) than in the questionnaires (77.3%) and in the observations (58.3%).

Data from the interviews revealed that the majority (60%) of the teachers said that code switching should be allowed in Physical Science classrooms. Twenty percent of the respondents in the interviews felt that code switching should not be allowed to avoid disadvantaging the learners when they wrote the national examinations and when they went for further studies. Another 20% of the teachers took a neutral standpoint on the matter. However, although almost 60% of the respondents said that code switching should be allowed in the questionnaires, 42.9% indicated that code switching should not be allowed in Grade 8-10 Physical Science classrooms.

In a further exploration of the teachers' views, it was found from the questionnaires that half of the teachers felt that learners in the Physical Science classrooms should be allowed to code switch in order to understand the scientific terms better and to learn the English language in the process. The respondents opposed to the idea of code switching reasoned that code switching would lead learners to neglect and/or ignore learning English language; learners would struggle with understanding examination questions leading to poor performance and code switching would confuse the learners as to which language they should use.

The study further found that 63.6% of the teachers supported the idea of teaching Physical Science primarily in English, offering a few explanations in mother tongue. On the same issue, 31.8% of the teachers indicated that teachers should strictly use English in their Physical Science

classrooms, while 4.6% said that English and mother tongue should be used equally in the Grade 8-10 Physical Science classrooms. This finding showed that 63.64% and 4.55% of the respondents were in support of code switching to be practised in Junior Secondary Physical Science classrooms.

The findings of this study also indicated that 9.1% of the respondents felt that the Namibian Language Policy forced them to use English as the language of instruction. These teachers expressed the wish to have the native languages used as the media of instruction as was common practice in some parts of the world.

The teachers also indicated various challenges, such as lack of teaching materials as well as a lack of laboratories which caused them to code switch. They also stated that code switching would pose a challenge in the classrooms with learners that would not have the same mother tongue with each other or with the teachers and would increase learners' poor performance in the examinations.

## **5.2 Conclusions**

The results of this study revealed that code switching was relatively prevalent in the Grade 8-10 Physical Science classrooms in the Oshana Education Region. The practice of code switching was attributed amongst others to the following: the learners' and at times teachers' insufficiency of the required English language proficiency, promotion of understanding, contextualising the Physical Science content, classroom management and for expressing emotions. It was also found that few teachers did not code switch in their Junior Secondary Physical Science lessons because the national Language Policy and the subject policy did not prescribe the use of code switching.



Furthermore, if the learners code switched in the national examinations their performance would be adversely affected.

The teachers recognised the advantages as well as the disadvantages of code switching and their choices of using code switching seemed to be cognizant of the good and the bad of code switching. The teachers in this study supported code switching to be allowed in the teaching and learning of Physical Science.

It was further found that 77.3% of the teachers indicated that they code switched to various extents. On the other hand 57.14% of the teachers did not think that code switching should be allowed in Junior Secondary Physical Science classrooms because it was against the national Language Policy. They considered it best that the Junior Secondary Physical Science be taught in English with a few mother tongue explanations which indicated their support for code switching in Physical Science classrooms.

Finally, it was not easy for some of teachers to admit that they code switched in this study. This was due to the fact that the Language Policy recommended English as the sole medium of instruction. In addition, although code switching may help the learners to understand the Physical Science content, it would have a negative impact on their performance. If there were mechanisms in place to accept the learners' mother tongue answers in the examinations, learners' performance would not be badly affected. Teachers required some guidance on the use of code switching in their Physical Science classrooms for them to manage it appropriately. In the absence of such, teachers would continue dealing with code switching in their classrooms as they

see fit and this might be to the detriment of the teaching and/or learning of Junior Secondary Physical Science.

### **5.3 Recommendations of the study**

In the light of the findings of this study, the researcher recommends the following

- The Ministry of Education needs to acknowledge that code switching is prevalent in the Junior Secondary Physical Science classrooms. The Ministry needs to formulate a policy that will guide the use of code switching in the Junior Secondary Physical Science classrooms as well as guidelines on how the teachers should handle code switching in the learners' answers in the national examinations.
- The Ministry of Education should make attempts to strengthen English language teaching in schools. This might improve the learners' English language proficiency and reduce the extra responsibility of the non-language subject teachers teaching English.
- Incentives such as bonuses should be put in place to encourage teachers to undertake professional development programmes in order to improve their teaching as well as their English language skills.
- Curriculum developers should come up with measures to address the challenges and benefits that code switching brings to the classroom and incorporate guidelines on the use of code switching for the teachers to follow.

- The University of Namibia, as the main teacher training institution in Namibia, needs to integrate the issue of code switching into the teaching methodology courses in order to prepare the student teachers for the realities that await them in the classrooms.
- There is a need for similar studies to be carried out in the other Education Regions so as to determine the prevalence of code switching at the national level in order to take actions that will benefit all schools in Namibia.
- Learners were not included in the sample of this study. It is recommended that other researchers conduct studies that will include the learners.

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# Appendix 1: Permission from the MoE Permanent Secretary

FROM : DIRECTORATE - PGA

FAX NO. : 061 2933922

Mar. 01 2010 03:55PM P1



REPUBLIC OF NAMIBIA

## MINISTRY OF EDUCATION

PROGRAMMES AND QUALITY ASSURANCE

Tel: 264 61 2933200  
Fax: 264 61 2933922  
E-mail: [mshimho@mec.gov.na](mailto:mshimho@mec.gov.na)  
Enquiries: MN Shimhopileni  
File: 11/2/1

Private Bag 13186  
Windhoek  
NAMIBIA  
26 February 2010

Ms Aina M Kamati  
P. O. Box 2913  
ONDANGWA

Dear Ms Kamati

**RE: REQUEST TO CONDUCT RESEARCH IN SOME SCHOOLS IN OSHANA REGION**

Your letter dated 21 February 2010 requesting permission to conduct a research at eight (8) secondary schools in Oshana Region, has reference.

Kindly be informed that the Ministry does not have any objection to your request to carry out a research project at some schools.

However, you are advised to contact the Regional Education Office for permission to go into the schools. It is also advisable to identify the schools you intend to visit before approaching the regional office, for them to know which schools you have selected.

Kindly note also that the Ministry would appreciate it highly, if you could present it with a copy of your research findings for our information.

By copy of this letter the regional director is made aware of your request.

Yours faithfully,

  
A Ilukena

A Ilukena

ACTING PERMANENT SECRETARY

cc: Regional Director: Oshana Education Region



## Appendix 2: Permission from the Director of Oshana Education Region

11-MAR-2010 07:36 From: MINISTRY OF EDUCATION 065229834

10:02:02:11

P.C



**REPUBLIC OF NAMIBIA**

**MINISTRY OF EDUCATION  
OSMANA:**

**PRIVATE BAG 5518 TEL: 065 229800, FAX: 065-229834**

Enq: M. N. Nambala

10 March 2010

Ms. A. M. Kamati  
P.O. Box 2913  
Ondangwa

Dear Ms. Kamati

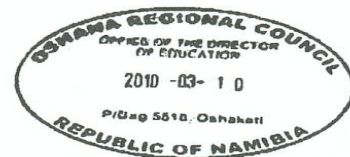
We hereby acknowledge your letter of 8 March 2010 requesting permission to conduct your research in the listed schools. In as much as permission has been granted for you to carry out your research as planned, we earnestly ask you to do it at the most convenient time for the school, so that the school program is not in any way disrupted through your interactions with them.

You are also requested to discuss logistical matters with the schools concerned.

Again we wish you all the best in your studies and hope that your findings will be shared with us.

Yours sincerely

 (acting) 10/03/2010  
DUTTE N. SHINYEMBA  
REGIONAL DIRECTOR



All official correspondence should be addressed to The Director

**Appendix 3: Principals' consent form**

# UNIVERSITY OF NAMIBIA

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Private Bag 13301, 340 Mandume Ndemufayo Avenue, Pioneerspark, Windhoek, Namibia



I .....a school principal, fully agreed to support A. M. Kamati a Master Degree student at UNAM to conduct her study of code switching in Junior Secondary Physical Science classrooms in Oshana Education Region.

.....

.....

Signature

Date

**Appendix 4: Teachers' consent form**

# UNIVERSITY OF NAMIBIA

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Private Bag 13301, 340 Mandume Ndemufayo Avenue, Pioneerspark, Windhoek, Namibia



I ..... a Physical Science teacher; agreed to support A. M. Kamati a Master Degree student at UNAM by being a participant in her study of code switching in Junior Secondary Physical Science classrooms in Oshana Education Region.

.....

.....

Signature

Date

## Appendix 5: Questionnaire

# UNIVERSITY OF NAMIBIA

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Private Bag 13301, 340 Mandume Ndemufayo Avenue, Pioneerspark, Windhoek, Namibia



No:...../22

### **Questionnaire for Grade 8-10 Physical Science teachers in Oshana Education Region**

This questionnaire is intended to explore the concept of code switching in Physical Science in the Junior Secondary classrooms. The information to be collected in this study is essential for the partial fulfilment of the requirements of the award of the Master of Education degree. It is hoped that the findings of this study might also contribute to the betterment of Physical Science Education in Namibia.

The information that is going to be collected will be treated with utmost confidentiality and anonymity. The information to be collected from this questionnaire will only be used for the purpose of this study and your identity will not be revealed in this study.

**Please answer the questions as truthfully as you can to facilitate accurate findings for this study.**

---

**Code switching refers to changing back and forth between two languages or more in a single conversation (Fromkin, Rodman and Hyams, 2007). Simply put, code switching refers to using more than one language in a single conversation.**

1. Does a school policy/rule exist on the use of other languages than English in teaching school subjects?

- a) Yes                       b) No

2. Briefly describe the school's policy on the language to be used in teaching school subjects.

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3. How would you rate the English proficiency of the learners in your Physical Science classroom?

- a) Very Good   
b) Good   
c) Average   
d) Poor   
e) Very Poor

4. What effect do you think the English language proficiency of the learners have on learning Physical Science? Describe briefly.

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.....  
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5. How would you rate your own proficiency in the English language?

- a) Very Good
- b) Good
- c) Average
- d) Poor
- e) Very Poor

6. What effect do you think your own proficiency in the English language have on teaching Physical Science? Describe briefly.

.....  
.....  
.....  
.....

7. How often do the learners ask you to explain Physical Science concepts in mother tongue?

- a) Always
- b) Often
- c) Sometimes
- d) Rarely
- e) Never

8. Briefly describe how you respond to these requests.

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.....  
.....  
.....

**9.** How often do learners use their mother tongue when they answer Physical Science questions orally in your lessons?

- a) Always
- b) Often
- c) Sometimes
- d) Rarely
- e) Never

**10.** How do you respond to the learners' spoken mother tongue responses?

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**11.** What do you think causes the learners to use mother tongue in Physical Science lessons?

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**12.** How often do learners answer in mother tongue in written activities (homework, assignments, tests and examinations)?

- a) Always
- b) Often
- c) Sometimes
- d) Rarely
- e) Never

**13.** How do you act in response to the learners' written mother tongue answers?

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**14.** How often do you code switch in an average lesson?

- a) Every time
- b) Almost everytime
- c) Sometimes
- d) Rarely
- e) Never

Give reasons for your response to question **14**.

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**15.** What effect do you think explaining in mother tongue has on learning Physical Science?

- i. Very positive
- ii. Positive
- iii. Neutral
- iv. Negative
- v. Very Negative

Give a reason for your response.

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**16.** Should Physical Science teachers be allowed to code switch while teaching?

- a) Yes
- b) No

Give reasons for your response.

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**17.** Should learners be allowed to code switch during Physical Science?

- a) Yes                                       b) No

Give reasons for your response.

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**18.** Which of the following would you generally consider to be the best way of handling the issue of language in Physical Science lessons so that learners can understand the subject matter well? Tick in appropriate box.

- i. Teaching and all explanations to be done strictly in English and no other language should be used.
- ii. Teaching mainly done in English and when the need arises, a few explanations to be done in mother tongue.
- iii. Use English and learners' mother tongue equally in the lessons.
- iv. Teaching to be done in English but most explanations done in the learners' mother tongue.
- v. Teaching to be done mainly in the learners' mother tongue and when a need arises, a few explanations to be done in English.

**19.** Give reasons for your choice to question 18.

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**20.** To what degree would you support the idea of code switching in Physical Science lessons?

- a) Strongly support
- b) Support
- c) Neutral
- d) Oppose
- e) Strongly oppose

Give a reason for your answer for question 20.

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**21.** In your opinion what are the advantages of code switching?

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**22.** In your opinion what are the disadvantages of code switching?

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**23.** In your view, what are the challenges faced by teachers as far as code switching is concerned?

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24. What is your general view concerning code switching?

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**End of questionnaire. Thank you for your time and effort.**



**Appendix 6: Interview Schedule**

**An Interview Guide for for Grade 8-10 Physical Science teachers in Oshana Education**

**Region**

**School:** .....

**No:** .....

---

This interview is intended to explore the concept of code switching in Grades 8-10 Physical Science lessons. It is hoped that the findings of this study might contribute to betterment of Science Education.

The information that is going to be collected will be treated with utmost confidentiality and anonymity. The information to be collected from this interview will only be used for the purpose of this study and your identity will not be revealed in this study.

This interview is going to be tape recorded so that I can concentrate on our discussion now and come to write it out later. Please answer the questions as honestly as you can to facilitate accurate findings for this study. Thank you.

---

1. Briefly explain the extent to which code switching is practised in your Physical Science lessons.

Notes:.....  
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2. What do you think are the reasons for the occurrence of code switching in your Physical Science lessons?

Notes:.....  
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3. What impact do you think code switching has on the teaching and learning of Physical Science?

Notes:.....  
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4. In your view, should code switching be allowed to be practiced in Physical Science classrooms? Explain why.

Notes:.....  
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5. What would you say are the advantages of code switching in Physical Science lessons?

Notes:.....  
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What would you say are the disadvantages of code switching in Physical Science lessons?

Notes:.....  
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What is your general view on the issue of using mother tongue or any language other than English in Physical Science lessons?

Notes:.....  
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6. Is there anything else that you would like to add for this interview?

Notes:.....  
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**Thank you for your time and effort, you have made a significant contribution to the education of our nation.**

**Appendix 7: Observation sheet**

**Observation sheet for Grade 8-10 Physical Science lessons in Oshana Education Region**

No: .....

Date: .....

Time: .....

School: .....

Grade: .....

Teacher: .....

Class size: .....

**1. DEMOGRAPHIC INFORMATION**

Teacher's Home Language: .....

Gender	Home language			
	Oshiwambo	English	Other	Total
Male				
Female				
<b>Total</b>				

**2. IS CODE SWITCHING PRACTISED?**

a) Yes

b) No

**3. TEACHER'S CODE SWITCHING**

Extent of code switching	✓ / ×	Reasons for code switching
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<b>Almost everytime</b>		
<b>Sometimes</b>		
<b>Rarely</b>		
<b>Never</b>		

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**4. COMMENTS**

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