The Impact of Silozi Language on the Teaching of Numeracy in the Zambezi Region

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ABSTRACT

The study reports on the challenges lower primary numeracy teachers in the Zambezi Region face when using Silozi language as a medium of instruction. The use of Silozi language as a medium of instruction is part of the Namibian language policy in schools. In the Zambezi Region, Silozi, a lingua franca is considered predominant. The findings of the study show that teachers were unable to interpret the concepts in the curriculum and learners could not express their ideas using the lingua franca. However, when Numeracy questions were presented to the learners in symbolic form and in their mother tongue, they did not face challenges in understanding the questions. The study uses the socio-cultural theory as theoretical framework.

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1. INTRODUCTION.

Silozi is a language used as a medium of teaching and learning of Numeracy in the Zambezi Region. Many stakeholders in the education system in Zambezi Region consider Silozi as a lingua franca (Seidel, 2005; Sitwala, 2010). A lingua franca is a common language, but one which is native only to some of its speakers (Sebba, 1997). To understand why Silozi is a lingua franca, in the Zambezi Region where it is used as a language of teaching and learning, the following socio-historical context of the indigenous Malozi people is discussed.

Socio-Historical Context of The Malozi

The Malozi people came from the north and south to settle in the Zambezi Region of Namibia in the early 1800s (Sitwala, 2010). The northerners came with the Sili language, also known as Siluyana, as a language of communication. They went into social intercourse with the Totela, Subia, Nkoya and Mashi who were also moving downwards into the Zambezi Region coming from the Western Province of Zambia. The southerners, led by Sebitwane, came from as far as South Africa and Lesotho. They brought with them Sikololo as a language of communication. The view of the study is that Sikololo and Siluyana were in co-existence, and still exist as different languages.

Pretorius (1975) and Sitwala (2010) suggest that the languages of the northerners and southerners merged into what is now known as the Silozi language. However, another view is that the languages of the southerners and northerners still manifest themselves as Subia, Sifwe, Totela, Mbukushu, Setswana and Yeyi-all current spoken languages in the Zambezi Region. There are also a few speakers of Hugwe, a Khoe language in the Zambezi Region and this makes Silozi not to be a hybrid language for the Zambezi Region. Kangumui (2009) suggests that almost 80% of the learners in the Zambezi Region have other home languages.

A hybrid language or lingua franca is expected to meet the needs of all the ethnic groups but Silozi as a lingua franca does not. Pretorius (1975) for instance supports this as he states that the use of Silozi language as a mother tongue in Zambezi is very low. However, in lower primary it is used as language of teaching. This challenge is exacerbated by lack of teaching and learning resources, including books, in Silozi language to allow learners to read and practice at home. Even though learners have other home languages which they speak at home, the Silozi language is predominantly used as a language of teaching and learning as if Silozi is their mother tongue (Totemeyer, 2010). Given this background, this study sought to find how the learners’ performance in Numeracy is impacted when Silozi language, a lingua franca, is used as a language of instruction and communication at school.

Statement of the Problems

According to the Namibian Ministry of Basic Education Sport and Culture (NMBESC) (2003) Numeracy teaching in grade 1 -3 must be done through the mother tongue or a predominant local language. There is also a section in the (NMBESC, 2003) where the Namibian government ensures that learners are not short changed
by bringing the top-down also known as the centralized approach to the curriculum (Morris & Adamson, 2010; Mukwambo, 2017) similar to that of Hong Kong. Centralized curriculum emphasizes that if a school wishes to make changes in the curriculum, in this instance, from the use of Silozi language to the mother tongue as a medium of instruction in the Lower Primary phase, permission must be obtained from the Minister of Basic Education, Sport and Culture. This must be supported with well-grounded, and substantial incentive. Even though this provision is in place no school in the region under this study ever went to get permission to use other languages learners are familiar with. However, in schools in the region, learners grapple to develop Numeracy skills as teachers use an instructional language which is a lingua franca – Silozi language. Further evidence that learners in grade 1 – 3 grapple to develop Numeracy skills is that they first encounter Silozi language the first day they enter school since at home they engage in social interactions using their mother tongue languages, such as, Few, Subiya, Yeyi, and Mbu Kushu languages spoken in parts of the Zambezi Region.

Further evidence revealing that learners grapple to develop Numeracy skills because of language barrier is revealed in a class observed (Mukwambo, Ramasike & Ngcoza, 2018). When a trainee teacher intended to sensitize learners on the role numbers play namely: nominal, naming objects using numbers, ordinal, ordering of things in a set using numbers and cardinal, how many in a set - learners failed to easily develop this knowledge. With the intention to show learners that numbers play the role of naming, the trainee selected numbers such as Ketalizaho (5), Silela (6), Supa (7) and Lishumi (10) showing numbers in Silozi language, used as names of people in the region. However, learners could not make sense of his illustration since at home they use a mother tongue which names the same numbers using different names. The illustrations remained culturally unsuituated (Mukwambo et al., 2018; Yuan, 2017). Orgill (2007) concurs with the latter observation and posits that learning or meaning-making of a concept, for instance Numeracy, occurs not only in a physical location, but should be a contextualized and situated process.

According to Ogbu (1982), successful teaching and learning takes place when language used is congruent with the language which the learner speaks at home. These different learners from the different parts of this region find challenges in Numeracy acquisition which manifest themselves in later grades. Therefore, this study sought to investigate the impact of the use of the Silozi language as a language of instruction to teach Numeracy in the lower primary school. The study sought to address the following research question: What is the impact of Silozi language on the teaching of Numeracy in the lower primary school level?.

Culturally Situating the Teaching of Numeracy

Numeracy concepts, that are key to understand our data-saturated societies (Nygaard & Hughes-Hallet (2001), are developed in lower primary level form the basis of building a strong mathematical background in a learner. A learner is expected to develop Numeracy skills so that he/she uses the skills to understanding everyday life situations where Numeracy is embedded. The NMBESC (2003) and Byinton, Kim, Weigel and Nazarechuk (2016) suggest some of the early Numeracy concepts that be developed in lower primary as; classification, matching, seriation and patterning.

Jordan (2007) sees classification as a talent of sorting or grouping items by similar features, such as colors, shapes or sizes. This is gained in life activities as learners during their early life obviously classify toys by type and sort crayons by color. This must be the activities a numeracy teacher to bring in classroom activities for learners to know what classification is.

On the other hand, matching is a simple practice of sorting. It is finding objects that are the identical or alike, such as a pair of shoes. Matching can include finding items with the same specific attributes (color, size or shape). For example, children can match two items that are the color green. Seriation is arranging objects in order by size, location or position. Ordering requires the ability to see differences and compare multiple objects. For example, children in the classroom could be arranged from shortest to tallest, or story picture cards could be sequenced in the order the events happened in the story. According to Burton (1994) pattern are sequences that repeat. The skill to identify patterns supports math skills. A skill in patterning helps learners make predictions about what will come next.

These Numeracy concepts need to be developed considering that a learner’s mind is not a tabula rasa (Locke, 1690), and the notion that learning is a contextualized and situated process (Orgill, 2007). The (NMBESC, 2003) presents a shift from Locke’s (1690) theory of behaviorism in that it identifies learning numeracy as influenced by social-cultural issues (Wasner, Moeller, Fischer, & Nuerk, 2014). It brought the constructivist theory which embraces the idea that learners come to school with prior knowledge acquired socially and physically using their mother tongue. According to Jocuns (2012), within a classroom or other educational setting, a Numeracy teacher is expected to ensure that logical-numeracy skills are developed through use of a culturally responsive language. In doing so, the teacher, culturally situates the numeracy classroom discourse so that each learner is accommodated, and that the learner is not dehumanized (Brown, 2013) meaning that knowledge construction should not focused on the decontextualized individual as a learner, but on how the learner generates knowledge through interaction with his/her environment (or learning context) (Perez-Sanagustin, Munoz-Merino, Alario-Hoyos, Soldani, & Kloos, 2015). The question is the use of Silozi language supports the acquisitions of numeracy skills among the learners in the Zambezi Region? The language used to allow a learner to socially and physically construct Numeracy skills distances itself from the language used by the learner at home, and used to build his prior knowledge. Equally important is the assertion that learning “takes place as a result of participation in authentic activities that nurture and guide one’s ability to think” (Gieselman, Stark & Farruggia, 2000, p. 264). The authors are aware that the meaning of the word ‘authentic’ is contested, however, in this study authentic contexts refer to learning environments that reflect the experiences in which knowledge is applied in real life (Onda, 2012). Therefore, authentic activities should be complex and ill defined yet reflecting how similar problems are solved in everyday life situations where learners are given the opportunity to distinguish between relevant and irrelevant in formation (Onda, 2012).

In the Zambezi Region, similar to other regions, the North West of Namibia where many dialects and/or languages are found as mother tongue, some are only used in school, but others are not. For instance, the languages Oshingandjera and Oshimbalantu are not given the same status in lower primary Numeracy teaching and learning as other languages in that region (Baba, 2013). This reflects short changing of learners which comes as a problem, particularly learners who speak Oshingandjera and Oshimbalantu as a mother tongue.
This has made Tötemeyer (2010) comment that Namibian indigenous languages are under-utilized. Our view is this under-utilization of a language might result in its extinction. It is not only the language which is lost but also the Numeracy knowledge and other indigenous knowledge which comes embedded in the language of how people in that community perform their cultural practices (Mukwambo, 2017). The simile below explains how mother tongue [language] relates to knowledge embedded in it.

Mother tongue, the language used in Numeracy teaching in lower primary is like cotyledons protecting an embryo, the knowledge. The cotyledon is like the language where the Numeracy knowledge and others, feed from. If mother tongue is allowed to be extinct as what can happen, which can happen, then that strips a community off its identity. A learner whose mother tongue is not used for Numeracy development is having language of another culture, but without the identity of his community since in that knowledge there is no knowledge he can put into practical use as it is inert (Hale, 2013). Further support revealing importance of the mother tongue in teaching and learning is confirmed in many research results such from (Brock-Utne, 2000; Heugh, 2000; Pattanyak, 1986). In addition, (UNESCO, 1968), claims that it is

Through his mother tongue that every human being first learns to formulate and express his ideas about himself and about the world in which he lives. Every child is born into a cultural environment; the language is both a part of and an expression of, that environment. Thus, acquiring of this language, his mother tongue is part of the process by which a child absorbs the cultural environment; it can, then, be said that this language plays an important part in moulding the child’s early concepts. He will, therefore, find it difficult to grasp any new concept which is so alien to his cultural environment and that it cannot readily find expressions in his (her) mother tongue (p. 690).

If a lingua franca such as Silozi is used for the teaching of Numeracy, then there is what Tötemeyer (2010) refers to as absence of fit between the language a learner speaks at home and that used for teaching and learning at school. The absence of fit is one of the major contributing factors to poor academic results and high drop-out rates as concepts are not culturally situated (Tötemeyer, 2010). Ogbu (1982) also refer to this scenario as lack of congruency. Use of language as a component of culture of a learner allows the social and physical construction of Numeracy skills. The valuing of social and cultural aspects led this study to consider social constructivist and sociocultural theory as lenses useful to support the data and the literature in the study.

Social Constructivism And Socio-Cultural Theory

Social constructivism, a strand of constructivism helps our thinking about how a child internalises a Numeracy idea. Socio-cultural, also a strand of constructivism offers a perspective that helps analyse influences of the social/cultural aspects within the teaching and learning setting (Van de Walle de Wall, Karp & Bay-Williams, 2013). This perspective of viewing teaching anchored on socio-cultural aspects allows teachers to culturally translate, transfer of a Numeracy sources in Silozi/English into target Numeracy data in learners mother tongue (Bhabha, 1994) in their discourses.

Dominant to constructivism, unlike in the behaviourist theory where learners are viewed as table rasa, Locke (1690) suggests posits that children are architects of their own knowledge and apply prior knowledge (Plaget, 2013; Vygotsky, 1980) to make sense of new knowledge. This approach positions children as active participants and decision-makers, who actively construct their own understandings and contribute to others’ learning if the teaching is culturally situated through use of mother tongue (Mukwambo, 2017; Yuan, 2017). In addition, during class interactions students use each other’s ideas as learning resources. According to Van de Walle, Karp and Bay-Williams (2013), this can happen in two ways: assimilation and accommodation. Assimilation occurs when a new concept ‘fits’ with prior knowledge (Tötemeyer, 2010). The new information expands an existing knowledge network. Accommodation takes place when the new concept does not ‘fit’ with prior knowledge, so the brain revamps or replaces existing schema to accommodate the new knowledge. Though learning is constructed within the self, the cultural environment where language is a component contributes to learning while the child contributes to the cultural environment.

A sociocultural approach to learning emphasises the socially-negotiated and embedded nature of meaning-making and how children use the cognitive mediating tools of their cultural community namely: vocabulary in their mother tongue; models reflecting how they learn the idea; patterns; symbols and case studies anchored on the way they learn in their communities (Mukwambo, 2017). This is achieved through participation in social activities, such as learning at school (Murphy & Hall, 2008).

Fundamental to socio-cultural perspectives is the belief that knowledge exists between and among individuals in social settings and learning occurs through interactions that are influenced by different cultural, multimodal representations (language, pictures, etc.) and the cultural environment. Children learn with understanding when they bring their diverse experiences, perspectives, expectations, knowledge and skills to their learning. This allows us to bring the idea that each language used to teach Numeracy has in it different views used to understand mathematical ideas. For instance, Silozi currently used for teaching counting skills has numbers anchored on base ten. For instance, six in Silozi is Silela and is in base ten. Other languages have six in base referred as Eanja nikonke (Sifwe). Akin to Sifwe, the other languages, however, views counting as anchored on base six. How do learners perform in Numeracy when Silozi language is used as a medium of learning and teaching in lower primary when the way they count is different? This is a complex learning environment faced learners during Numeracy instruction in the Zambezi Region.

The way in which this knowledge is acquired depends on the learners’ zone of proximal development (ZPD). The ZPD is understood as a spectrum of knowledge that may be out of reach for a learner on his/her own, but is accessible if the learner has support from peers or more knowledgeable others – for instance the teachers (Goos, 2004; Vygotsky, 1978). The importance of language and other ways of conveying cultural practice, such as vocabulary in their mother tongue, models reflecting how learners learn the concepts, patterns, symbols and case studies anchored on the way they learn in their communities play a role when taken as mediating tools in teaching.
2. RESEARCH METHOD

This study uses a qualitative research approach. It took the form of an action research, a cyclic process entailing problem finding, acting and fact-finding about the result of action (Lesha, 2014).

Participants

This study was conducted in the early childhood learning environment. The participants were five numeracy indigenous teachers teaching in the Zambezi Region of Namibia. They were four female all aged below forty years and one male aged forty nine. All of them were diploma holders which qualifies them to teach lower primary. They were selected taken into account that they are speakers any of those other language found in the region.

Data Collections

With the objective to find the impact of Silozi language on the teaching of Numeracy in the Zambezi Region the study utilized cultural-based methods (other languages used as mother tongue) to determine and enhance learner’s understandings of Numeracy skills. Finally, using the same aim of finding the Silozi language impact in Numeracy teaching, the researchers guided Numeracy teachers through the process of identifying patterns and other numeracy skills in the counting systems used in the languages which are in the region.

The research question focused on in this paper is: How learners perform in Numeracy when Silozi language is used as a medium of learning and teaching in lower primary? To complete the steps in the cycle of action research, researchers had baseline data, obtained through observing the situation before the Silozi language is used, and compared it with data after the intervention when other mother tongues were used. They observed how learners understand the concepts of classification, matching, seriation, patterning, nominal, cardinal and ordinal when Silozi a lingua franca is used and after the intervention the mother tongue was used. After following some ethical approval settings five teachers participated. The five Numeracy teachers who participated interacted with researchers where they were exposed to situations that culturally situate discourses. This allowed them to situate discourses in cultural context.

The data in Table 1 was generated from observing the five teachers. The aim was to find the language they use and which other languages can possibly be used in the class.

<table>
<thead>
<tr>
<th>Number symbol</th>
<th>Language</th>
<th>Language</th>
<th>Language</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nwi</td>
<td>Konke</td>
<td>Kaski</td>
<td>Konke</td>
</tr>
<tr>
<td>2</td>
<td>Peli</td>
<td>Tobile</td>
<td>Tuwiri</td>
<td>Tobele</td>
</tr>
<tr>
<td>3</td>
<td>Talu</td>
<td>Totatwe</td>
<td>Tutatu</td>
<td>Totatwe</td>
</tr>
<tr>
<td>4</td>
<td>Ne</td>
<td>Tone</td>
<td>Tune</td>
<td>Tune</td>
</tr>
<tr>
<td>5</td>
<td>Ketalizohu</td>
<td>Eanja</td>
<td>Lyanja</td>
<td>Iyaza</td>
</tr>
<tr>
<td>6</td>
<td>Silela</td>
<td>Eanja nikonke</td>
<td>Lyanja indi kaski</td>
<td>Iyaza nikoke</td>
</tr>
<tr>
<td>7</td>
<td>Supa</td>
<td>Eanja nitobile</td>
<td>Lyanja indi tuwire</td>
<td>Iyaza ni tobele</td>
</tr>
<tr>
<td>8</td>
<td>Lobapeli</td>
<td>Eanja nitotatwe</td>
<td>Lyanja indi tutatu</td>
<td>Iyaza ni totatwe</td>
</tr>
<tr>
<td>9</td>
<td>Lobafiwi</td>
<td>Eanja nitone</td>
<td>Lyanja indi tunee</td>
<td>Iyaza ni tone</td>
</tr>
<tr>
<td>10</td>
<td>Lishumi</td>
<td>Ekumi</td>
<td>Manja</td>
<td>Ikumi</td>
</tr>
</tbody>
</table>

The idea to list all the possible languages which can be used was to find if any of the five teachers were at any time doing translanguaging, an exercise used by polyligual teachers to move between the languages that they know in order to communicate in a range of social contexts (Child, 2016). Since the impact of their discourses can only be reflected in learners, this then tasked the researchers to look into the work of the learners to see how the Numeracy concepts were constructed.

Data From Analysing Work of Learners

Table 2 below reveals how the learners performed when the learners were taught in Silozi. Work for five learners was followed. A 1 or 0 indicate a mark a learner obtained in a particular category. The aspects which were focused were those where they were tasked to answer questions about classification, matching, seriation, patterning, nominal, cardinal and ordinal related to develop their Numeracy skills.
Table 2. Learners Performance In Numeracy Skills

<table>
<thead>
<tr>
<th>Numeracy Task</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Matching</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Seriation</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Patterning</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Nominal</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cardinal</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ordinal</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

When the results above were obtained, it was necessary to hear the views of the teachers. The aim was to find if they see if Silozi use as a language of the teaching has an impact on the performance of the teachers.

Data From Interviews

Table 3. Data From Interviews

<table>
<thead>
<tr>
<th>Theme</th>
<th>Teacher name</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>----</td>
<td>---</td>
</tr>
<tr>
<td>Situating</td>
<td>x</td>
</tr>
<tr>
<td>Congruency in curriculum</td>
<td>x</td>
</tr>
<tr>
<td>Cultural context embracing</td>
<td>x</td>
</tr>
<tr>
<td>Relating to number system in learners’ prior knowledge were embraced</td>
<td>x</td>
</tr>
<tr>
<td>Language policy</td>
<td>✔</td>
</tr>
</tbody>
</table>

When interviews were given, teachers were told the objective is to find Silozi impact on the teaching of Numeracy in the Zambezi Region. However, when the teachers filled the interviews, it was an individual activity. During intervention, the two data sets were presented to them. The aim was to hear what their view was on: How learners perform in Numeracy when Silozi language is used as a medium of learning and teaching in lower primary? The excerpts below reveal what they had in mind about the research question.

Data From Reflections

The excerpts from reflections allowed seeing the impact of Silozi from the view of the teachers. This allowed answering the research question. The excerpts were analysed and themes which imaged were coded.

Excerpt 1

There is need to accommodate the language which the learner speak at home. This can allow seeing how numbers are used for naming, ordering and counting. Failure to change to the language which a learner uses at home privileges only those conversant with Silozi.

Excerpt 2

The provision for teachers to use language learners use at home is there. However, teachers fear to make changes in the curriculum but the curriculum on this policy is centralized. Regardless of this we can still make changes to embrace all cultures where their prior knowledge is built from. This allows learners to take their understand of concepts such as classification, matching, seriation, patterning in their communities to understand Numeracy as prescribed in the curriculum.

Data Analysis And Findings

Table 1 support the authors (Pretorius, 1975; Sitwala, 2010) who suggest that languages of the southerners and northerners still manifest themselves as Subia, Sifwe, Totela, Mbukushu, Setswana and Yeyi in the Zambezi Region. The non-recognition of these languages as a medium of teaching comes as a negative impact as revealed in Table 2 and 3. In Table 2, learner’s performance in Numeracy concepts is very low. In Table 3 the themes emerging are none of the five teachers situate Numeracy concepts (Yuan, 2017; Mukwambo, 2017), ensure that the language in use is congruent or fit theirs (Ogbu, 1982; Tötemeyer, 2010), address cultural context (Mukwambo, 2018), relate number system in learners’ prior knowledge (Vygotsky, 1980; Piaget, 2013). This negative impact brought about the use of a language a learner does not use for social intercourse lowers learners’ performance.

Even though they embrace the Namibian language policy they do not culturally translate (Bhabha, 1994). The expectation is the performance of learners at this level is good as it serve as the foundation for other mathematical concepts to be taught in other grades (Nygaard & Hughes-Hullet, 2001). According to Brown (2013) this dehumanizes learners as none fail to garner a mark above half of the total marks. Why then do Numeracy teachers keep using Silozi language, a lingua franca Sebba (1997) when at least 80% of learners speak other languages Kangumu (2009)?
In view of this, an intervention was brought to mitigate the situation. The five teachers after they went through an intervention revealed that there is need to embrace mother tongue of learners as there are some prior knowledge (Vygotsky, 1980; Piaget, 2013) that can be extracted from them. For instance, when teaching the role of numbers, the teacher might point out that one of the neighbour’s name is Six or Lishumi in Lozi. Learners might not see that a number is playing the nominal role. However, if he says the neighbour’s name is Ekumi, Manja, Ikumi or Dhikumi this might be understood better as this is better situated since those names are there in their communities. This can also be done to other roles which numbers play, ordinal and cardinal. The examples used must be from the mother tongue of the learner as this echoes with (Vygotsky, 1980) theory of sociocultural theory.

Similarly, in addressing Numeracy concepts such as patterning, an analysis of how numbers are said in each language reveals some pattern. For instance in Sifwe, Yeyi, Subia, and Mbukushe the pattern is when at five , to say the sixth and other remaining numbers you need to start by mentioning five. In all the languages including Silozi there is an additive notation (as in Eanja nikonke, Lyanja indi kaski, iyaza nikoke, Kwokho no kholofo for 6). That is it shows how many 1’s and how many 5’s there are in that “number”. If further counting is done above, starting from ten upwards, the number of tens are revealed.

The Numeracy teachers want to build a strong foundation for the Hindu-Arabic Numeral System (HANS). The HANS is a decimal system anchored on base 10. Akin to an odometer, HANS “ticks over” when it gets 10 items, creating a new digit. Similarly, all the languages used for counting in the Zambezi Region “ticks over” when it gets 5 items and when it gets 10 items. It is most probably that these languages manifest a counting system in base five and ten. Alternatively, these counting systems can be said are a heximal number system. Table 4 shows the patterns between the heximal and decimal which if they are taught the adverse effects of only using Silozi is mitigated since mathematical operations might start from doing numbers in different bases. Currently, only trainee teachers are taught how to perform operation of numbers in different bases but learners do not. They are only taught how to do operations of numbers in base ten.

| Table 4. Counting In Decimal And Heximal Which Zambezi Region Languages Are Anchored |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Counting In Decimal             | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| Counting In Heximal             | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

When these trends are analysed patterns are seen which learners can be asked to view. The fact that they know it and see it being applied allows the knowledge gained in this way to last forever as it is not inert (Hale, 2013) since they see where it is applied in their communities. When the teachers were shown, during intervention, it made them emerge the themes in the excerpts shown.

In excerpt 1 the theme of privileging a group whose language is used is revealed. According to these teachers it has a negative impact on the performance of learners. This forces them to embrace all the cultures in their discourses. This allows congruency and curriculum which fits learners to be embraced (Ogbu, 1982; Tötemeyer, 2010) as they suggest. The fact that they see from what they know, the theme of situating also emerges (Yuan, 2017; Mukwambo, 2017) view as important to prevent knowledge gained to be inert (Hale, 2013).

Finally, excerpt 2 reveal the theme of lack of cultural translating the curriculum Bhabha (1994) finds as important as an impact of the use of Silozi for teaching. Absence of embracing cultural translation does not ensure that what is taught is of the right cultural context Bhabha (1994) fin. Mukwambo, 2017) view as important to prevent knowledge gained to be inert (Hale, 2013).

In view of this, an intervention was brought to mitigate the situation. The five teachers after they went through an intervention revealed that there is need to embrace mother tongue of learners as there are some prior knowledge (Vygotsky, 1980; Piaget, 2013) that can be extracted from them. For instance, when teaching the role of numbers, the teacher might point out that one of the neighbour’s name is Six or Lishumi in Lozi. Learners might not see that a number is playing the nominal role. However, if he says the neighbour’s name is Ekumi, Manja, Ikumi or Dhikumi this might be understood better as this is better situated since those names are there in their communities. This can also be done to other roles which numbers play, ordinal and cardinal. The examples used must be from the mother tongue of the learner as this echoes with (Vygotsky, 1980) theory of sociocultural theory.

Similarly, in addressing Numeracy concepts such as patterning, an analysis of how numbers are said in each language reveals some pattern. For instance in Sifwe, Yeyi, Subia, and Mbukushe the pattern is when at five , to say the sixth and other remaining numbers you need to start by mentioning five. In all the languages including Silozi there is an additive notation (as in Eanja nikonke, Lyanja indi kaski, iyaza nikoke, Kwokho no kholofo for 6). That is it shows how many 1’s and how many 5’s there are in that “number”. If further counting is done above, starting from ten upwards, the number of tens are revealed.

The Numeracy teachers want to build a strong foundation for the Hindu-Arabic Numeral System (HANS). The HANS is a decimal system anchored on base 10. Akin to an odometer, HANS “ticks over” when it gets 10 items, creating a new digit. Similarly, all the languages used for counting in the Zambezi Region “ticks over” when it gets 5 items and when it gets 10 items. It is most probably that these languages manifest a counting system in base five and ten. Alternatively, these counting systems can be said are a heximal number system. Table 4 shows the patterns between the heximal and decimal which if they are taught the adverse effects of only using Silozi is mitigated since mathematical operations might start from doing numbers in different bases. Currently, only trainee teachers are taught how to perform operation of numbers in different bases but learners do not. They are only taught how to do operations of numbers in base ten.

| Table 4. Counting In Decimal And Heximal Which Zambezi Region Languages Are Anchored |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Counting In Decimal             | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| Counting In Heximal             | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |

When these trends are analysed patterns are seen which learners can be asked to view. The fact that they know it and see it being applied allows the knowledge gained in this way to last forever as it is not inert (Hale, 2013) since they see where it is applied in their communities. When the teachers were shown, during intervention, it made them emerge the themes in the excerpts shown.

In excerpt 1 the theme of privileging a group whose language is used is revealed. According to these teachers it has a negative impact on the performance of learners. This forces them to embrace all the cultures in their discourses. This allows congruency and curriculum which fits learners to be embraced (Ogbu, 1982; Tötemeyer, 2010) as they suggest. The fact that they see from what they know, the theme of situating also emerges (Yuan, 2017; Mukwambo, 2017) view as important to prevent knowledge gained to be inert (Hale, 2013).

Finally, excerpt 2 reveal the theme of lack of cultural translating the curriculum Bhabha (1994) finds as important as an impact of the use of Silozi for teaching. Absence of embracing cultural translation does not ensure that what is taught is of the right cultural context (Mukwambo, 2018). The theme of lack of translangauing Child (2016) support is another aspect which brings a negative impact on learners’ performance.

3. CONCLUSION

To understand Silozi impact on the teaching of Numeracy one need to consider the means of providing social, cultural, cultural contextualized and humanising experiences for learners by teachers in polylingual primary school or schools not accommodated by the Namibian language policy. Numeracy teachers have to consider some of the complexities of polylingual classroom contexts. Translangauing, cultural translating and cultural situating are argued to be a means of providing planned and systematic use of the home language of learners and the language of the classroom in order to foster meaning making and learning. In doing so the adverse impact which learners experience when Silozi is used is mitigated as learners’ performance is improved. Both the teacher and the learners are able to experience being more fully human, accommodated and have situated Numeracy skills constructed to last a life time.

REFERENCES


Van Laren, L., & Goba, B. (2013). "They say we are creche teachers": experiences of pre-service mathematics teachers taught through the medium of isiZulu. (Original Research) (Report). Pythagoras, 34 (1).
