CHAPTER THIRTEEN

The Ndebele Indigenous Games Pertinent to Primary School Mathematics Learning: Why Indigenous Games Are A Vital Tool For Mathematics Teaching And Learning.

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Abstract
The South African education system has for a very long time left out African students ' cultural backgrounds by completely adopting western ideals. It has contributed to learners from indigenous cultural contexts struggling to find the connection between home experiences and school education. Since South Africa's teaching of mathematics is not embedded in the pupil culture, learning and teaching have contributed to the major mathematical failure. Ethnomathematics as a component of Indigenous Knowledge Systems (IKS) will promote the teaching and learning of various principles and ideas in mathematics that are practiced by different cultures. The AmaNdebele people of South Africa have very much weaved and eternal cultural activities that contain complex and varied mathematical ideas and concepts. Therefore, such cultural practices should be part of teaching and learning mathematics. Based on observation and the researcher's experience as a Ndebele, the study discusses how the Ndebele indigenous games played over the centuries can be used in primary school mathematics classes. Document analysis was also used to evaluate policy frameworks, which support the integration of indigenous knowledge into the curriculum. The results of this study indicate that indigenous games played by AmaNdebele have mathematical ideas and principles that can be incorporated into the teaching and learning of mathematics. Incorporating indigenous knowledge into teaching approaches in rural areas assists learners with seeing that mathematical ideas and principles are not isolated, but have a clear connection with their daily lives, cultural context, and worthwhile learning in this manner. Concerning indigenous knowledge systems, this study recommends integrating IKS into the curriculum to relate and interlink the taught content with the learners' cultural background.
Keywords: culture, learners, AmaNdebele indigenous knowledge, Indigenous Knowledge Systems, Indigenous games, *iingezo, umrabaraba, umkoponi, amahege, igqhubsi* , Mathematics, ethnomathematics

Introduction

In Southern African, the Ndebele people are part of the large Nguni group and they can be categories into three. These are the Southern Transvaal Ndebele (now Gauteng and Mpumalanga), the Northern Transvaal Ndebele (now Limpopo Province) around the towns of Mokopane (Potgietersrus) and Polokwane (Pietersburg) and the Zimbabwean Ndebele people, which the British called the Matabele (Mashiyane, 2006). According to Van Vuuren (2010), the two groups of South African Ndebele are geographically different, speak a different language, and differ in cultural practices. The Ndebele of the Northern Province consists mainly of the groups BagaLanga and BagaSeleka, who are influenced by their neighbors, who are Sotho and have adopted much of their language and culture.

Mashiyane (2006) stated that the people of the Southern Ndebele (referred to in this study) are known for their beadwork and mural painting. These are based in the province of Mpumalanga and Gauteng. They are known as the ones who speak purer Ndebele which is closely related to IsiZulu. There are two traditional Southern Ndebele leaderships, which are the kingdom of Ndzundza Mabogo and Manala. However, the Kingdom of Ndzundza Mabhogo has many followers and chiefs ruling under its leadership. The culture and values of AmaNdebele are considered heritage and are carefully transmitted to the next generations by traditional methods that have been created. However, the Ndebele indigenous knowledge is not taught in classrooms, much like other indigenous groups in South Africa (Levy, 1990). The school system recognizes only the teaching of IsiNdebele as a language

(which is not used as a means of instruction for all subjects), neglecting other cultural aspects such as indigenous games which should be part of teaching and learning, particularly in primary schools.

Hence connections among mathematical content and home cultures of learners should be promoted (Bush, 2003; Nyota & Mapara,2008). According to Nkopodi and Mosimege (2009), research suggests there is a continuing challenge in integrating culture into mathematics and science teaching. This challenge has been existing before and after 1994 and despite efforts to incorporate cultural diversity into many academic fields. Nkopodi and Mosimege (2009) further argued that the challenge of incorporating Indigenous Knowledge Systems(IKS) into the mathematics and science classroom was due to the reality that both subjects were commonly considered 'Western' and rarely associated with African culture. While indigenous knowledge (IK) may play an important role in school education, most educators tend to disregard it. Semali and Kincheloe (1999) note that in science and mathematics classrooms, many post-colonial schools seldom reflect on the relation between school and indigenous knowledge.

The author as an indigenous researcher and a Ndebele with enthusiasm for IKS and ethnomathematics is especially interested in the knowledge of AmaNdebele 's indigenous games and their interaction with mathematics teaching, learning, and achievement (Bush, 2003). Nkopodi and Mosimege (2009) researched with the Pedi people in the Limpopo province and Batswana situated in the North-West provinces, which is where they were born and raised. They have investigated mathematical concepts such as symmetry, counting, geometric shapes, and proportions found in the morabaraba indigenous game. Hence, based on the author's experiences and observations, this paper aims to show that some of the indigenous games from Southern AmaNdebele can be integrated into math learning. The utilization of indigenous games in mathematics classrooms offers learners the link their well-known cultural interactions to the mathematical concepts and processes found in classrooms. It is on this basis that the following section addresses the relevant terms of this study.

Defining Indigenous Knowledge, Indigenous Knowledge Systems and Ethnomathematics

For study purposes, IKS as a global term refers to indigenous people's knowledge and wisdom that is used for cultural, historical, and social contexts primarily influenced by the environment, community, and family. In support of the mentioned definition, according to Grenier (1998), IK is the cumulative set of strategies, activities, procedures, tools, intellectual resources, and explanations accrued throughout a certain period in a particular territory, without the intervention and control of outside hegemonic powers, transmitted from one generation to the next.

The South African Revised Curriculum Statements identified IKS as knowledge systems that developed beyond and before the advent of the modern scientific knowledge system within diverse cultures (DoE, 2003). Furthermore, these are ways of learning and living (relationally) produced within indigenous communities from indigenous to a certain geographical region. Indigenous information structures are accumulative, reflecting experience production, careful evaluation, participation, and tests on trials and errors (Emeagwali,2003).

Ethnomathematics can be seen as a way people of a certain culture use mathematical ideas and principles to tackle the conceptual, relational, and spatial aspects of their lives (Ascher, 1991). This approach to understanding mathematics affirms and confirms all men's mathematical experience, as it proves that mathematical thinking is inherent in their lives. In this regard, D'Ambrosio (2006) argued that, from an ethnomathematical point of view, mathematical thinking is developed in various cultures, the following common problems experienced within a cultural context.

To illustrate their relationship the above concepts were defined. IKS is a broad term that encompasses ethnomathematics and that is shown in the concepts of D'Ambrosio (1984, 1985). The two of D'Ambrosio's explanations of ethnomathematics indicate that ethnomathematics and indigenous knowledge systems are closely related. The description is given by D'Ambrosio in 1984 states:

> societies have, as a result of the interaction of their individuals, developed practices, knowledge and in particular, jargons ... and codes, which encompass the way they mathematise, that is the way they count, measure, relate and classify and the way they infer. This is different from the

> way all these things are done by other cultural groups. [We are] interested in the relationship ... between ethnomathematics and society, where 'ethnos' comes into the picture as the modern and very global concept of ethno both as race and/or culture, which includes language, codes, symbols, values, and attitudes. This naturally implies science and mathematics practices.

For example, D'Ambrosio here takes a gander at the cultural elements, language, codes, symbols, beliefs, and mentalities, which represent a particular practice. He describes the cultural groups in a subsequent classification as national traditional cultures, indigenous communities, and children of a certain age group. D'Ambrosio (1985: 45) further stated that "we will call ethnomathematics the mathematics which is practiced among identifiable cultural groups, such as national-tribal societies, labour groups, and children of a certain age group"

It is fair to classify ethnomathematics as one of the components of indigenous knowledge systems based on the two definitions of D'Ambrosio, and other definitions of ethnomathematics not cited here. Furthermore, this knowledge of ethnomathematics has been transmitted in various cultural communities from one generation to the next in a form of observations, orally, experiments, cultural practices, or other methods of knowledge transmission which demonstrates that ethnomathematical knowledge is Indigenous Knowledge (Smael, 2002).

The South African Mathematics curriculum

South Africa is facing the problem of developing high-quality mathematical education for its multicultural community according to Tatira et al (2012). "The overall pass rate for final Grade 12 results rose from 60.7% in 2009 to 67.8% in 2010, but mathematics quality only increased from 46.0% in 2009 to 47.4% in 2010"(Parker, 2011; DoE, 2011: 58). It is partially a legacy of the apartheid regime marked by the underdevelopment of the black population's human capacity, under which mathematics and science teaching and training were badly affected (Makgato and Mji, 2006).

English's instructional medium is also a contributing factor in learner failure rates, especially those in indigenous communities (de Klerk, 2006). Kahn (2005) conducted a study that utilizes language as a metaphor and the results stated that, in Grade 12 mathematics, learners who do not use English as a first language are mostly not successful in mathematics. This finding is consistent with what Howie (2003) discovered in her Third International Mathematics and Science Study (TIMSS) on the standard of South African learners. Consequently, further work is important in investigating why learners who study mathematics in a language other than their home language do not perform at the expected level.

The theoretical framework of the study

This study is based on the social constructivism theory advocated by Vygotsky (1978) and Bruner (1996) and later expanded by Derry (1999). According to the theory of social constructivism, social worlds develop from the interactions between individuals and their culture and society.

Thus, learning is supposed to be a social process that happens as people engage in social activities. Social constructivism encourages the learner, influenced by their history and culture, to reach their interpretation of reality. Throughout this way, learning occurs, and the social context that the learners bring to the learning environment. It is therefore important from the point of view of social constructivists to understand the context, perceptions, and culture of the learner throughout the learning process since this history forms the knowledge and truth that the students discover, find, and establish (Owusu-Mensah and Baffour, 2015).

Methodology

This paper focuses on the IsiNdebele indigenous games that the researcher has observed to critically reflect their importance in being integrated for teaching and learning mathematics in primary schools. The game is described first, followed by the rules. Second, the research explores how children benefit from playing games like these (mentioned). Document analysis was used to view policy papers that promote the inclusion of IKS into the curriculum.

Findings and discussions

The importance of using indigenous games as a teaching tool at the primary education

Pupils tend to see mathematics as their most challenging area for teachers to understand, and hard to teach. The methods teachers use to teach mathematics are one of the factors responsible for poor performance and low achievement in mathematics. This is why there is a need to encourage the inclusion of indigenous games as teaching methods in the school mathematics classroom. An educational approach focused on ethnomathematics, which integrates substantial cultural mathematics games into school geometry, would offer learners the opportunity to make sense of mathematical concepts through personal experiments (Rosa, & Orey, 2013).

Tatira *et al* (2012) emphasize that a method of teaching mathematics in the classroom is by using textbooks which mainly demonstrate Community amenities such as electric trains, investment annuities, escalators, and others. These are in all intents and purposes a challenge to the vulnerable rural learners. In certain instances, the school curricula and instruction do not reflect local community indigenous culture (Lipka and Adams, 2004).

South African mathematics and science curriculum have been developed using the Western trend, which is the reason teaching and learning are done in English and/or Afrikaans (Muwanga-Zake, 2001). While schools are considered to be part of society, a major factor is the cultural divide between community and school and this continues to create a disparity between academic achievement s. (Tatira *et al*, 2012).

Teachers foster a passion for math outside the classroom by connecting culture and curriculum to help with what's going on within the classroom (Wyk, 2009). According to Yusuf, Saidi, and Halliru (2010), a game is a critical instrument when it can be connected to the educating of subjects in schools to help accomplish this link. Using indigenous games as part of the lesson helps a learner to find out about mathematical principles while studying, rather than using textbooks. Additionally, one of the Department of Education's recommendations for effective curriculum implementation was to prevent the use of textbooks, but then to start encouraging teachers to develop their tools and teaching techniques (DoE, 2009).

For the following reasons, it is important to incorporate games into mathematics teaching and learning because of Games:

1. Give learners opportunities to utilize mathematical principles for situational problem-solving and strategic thinking;
2. Develop effective students ' interest in mathematics and passion by engaging them in pleasurable activities and challenges
3. Foster the notion that learning is as enjoyable as possible.

Games also should encourage goodwill, competition, teamwork, and support and enjoyable for all. Games could be categorized into games of chance, games of strategy, and games of opportunity.

By using indigenous games to make mathematics learning practical and culturally appropriate, simple mathematical concepts could be learned (Owusu-Mensah and Baffour, 2015). Gaming is an element of indigenous knowledge which plays a significant role in the growth and child development.

Additionally, in the 1970s, Brazilian D'Ambrosio identified mathematics practiced by recognizable cultural groups as ethnomathematics (Yusuf, Saidu, and Halliru, 2010). Bearing in mind ethnomathematics and indigenous knowledge, the researcher shares what she saw as possible uses of some of the indigenous Ndebele games demonstrated in a rural mathematics class, expressing the same sentiments as (Nkopodi & Mosimege, 2009; Tatira et al, 2012).

1. *Iingezo*(also known as *diketo, magave, upuka*, jacks)

Iingezo is an indigenous mathematical game that is played by children but mainly young girls. This game can be played by individuals or teams with at least ten stones each. The stones are placed in a dug round hole ar drawn circle. The key objective of this game is to be the first to pick out most of the stones (including those of the opponent) and then returning them to the pit.

1. Rules of the game

At least 2 persons or more may play this game. They can dig a hole or draw a circle, putting in 10 stones each. The first player throws the stone into the air and attempts to catch it while removing all the small stones from the hole at the same time. The same cycle takes place as the stones return to the pit. If the stone is not caught and falls, it will be the next player's turn. When the stone is retrieved, it is again thrown back into the air, repeating the same cycle. Each time she is successful, the player returns fewer stones to the pit. It means when the stone is thrown up again, and once in the air, the stones are pushed out of the hole before the ingezo is caught again. Afterward, another stone is left behind and the remaining stones are pushed in. If the opposition failed to gather all their stones, then the other team proceeds to the next level while the other remains on the previous level. If both teams gather equal stones, they move to the next level.

At this point, a further round starts. All stones are put into the hole, but two stones are held this time, after the second throw. In a round, three stones are carried, and so forth. When at some point the ingezo is not captured, then the other player/team will have a pass. The winner is the player/team progressing to the furthest stage.

Iingezo is a scientific game that uses the following

1. Order of causality is reversible,
2. This is the concept of the course of the couse
3. A throw is a cause of the removal of the rocks (effect)
4. The scattering of rocks (now cause) can prevent catching of ingezo. Now ingezo becomes an effect.
5. Time is also important in catching ingezo and putting the rocks back.
6. The hand becomes a cause of the rising of the rock, rock on descent causes reaction of the hand.
7. Imaginary rock (in the mind) causes the hand to remove scattering of the rocks which causes a mindset change on how rocks should be put back in the hole (pit).
8. The hand plays a fundamental role since there is a connection between the hand and the mind.

The following example can be made

Player 1 uses his hand to throw ingezo (stone) into the air and at the same time, he removes the remaining rock from inside the hemispheric pit. Let's call ingezo event A and the remaining rock event B. While event A rises into the air, event B is moving horizontally across. The observer watches this succession of A and B with some regularity and concludes that A is the cause of B. We show the observer that my hand is the one that is responsible for the movement of A and B. We then reason that both A and B have a common cause in a form of a hand. The observer then concludes that the hand is the common cause.

I further dissect the causation and discover that the hand is in a fact not carrying A into the air. Instead, the hand generates an invincible force that causes A to raise into the air. We call this invincible cause vertical force. We also discover that the hand generates another invincible force that causes the appearance and movement of B and we call that a horizontal force. The discovery of these invincible forces shows that the hand is not a direct cause of A and B. There is a layer of indirection between the hand and the event. So far, through the modelling of iingezo, we have discovered that at the face value we attributed the cause to the hand played an indirect role in the causation. By repeating the simulation of events A and B, we have isolated the pseudo-processes and narrowed the direct causation to the invisible vector forces along with the vertical and horizontal directions.

9. *How children benefit from iingezo*

A percentage of games employments such as iingezo in science training includes taking into account mathematics' dialect and vocabulary, developing numerical skills, building ability with mental science, and designing logical thinking processes, and becoming the generator of scientific action at a mixture of different levels. The utilization of amusements additionally prompts the revelation of examples, choice-making, and legitimate thinking, derivation, and abilities.

10. *Umrabaraba* (also known as *morabaraba, umlabalaba, muravava*)

Umrabaraba is a traditional two-player strategy board game played in Southern Africa.

11. Rules of the game

Umrabaraba is a two-person board game, with 24 tokens for each player and 12 for each. In Murabaraba, rows of three tokens are created vertically, diagonally, or horizontally. Additionally, the goal of the game is for one player to remove the tokens of the opposition. Games can take place in hours or minutes. Tokens are placed at an intersection point, one at a time, in turn, with the vision of getting three identical tokens to form a line. The opponent can place their tokens wherever they may be to prevent the other player from getting three in a row. If a player gets three tokens in a row they won the game, and they have to eliminate one of the other player's tokens from the board. The game goes on until all tokens are used. Players can move their tokens to new intersections, and keep trying to get each other's tokens.

12. How children benefit from umrabaraba

According to Zulu (2012), the author of Sesotho Dictionary of Mathematics Morabaraba aims at modeling, researching, and evaluating strategic matters. He further claimed that Morabaraba's expert players can predict the outcome with as little as three pieces on the board. Therefore, given that the board has a maximum of 24 spots, it requires excellent memory and advanced mathematical knowledge of permutation to predict an outcome The following mathematical concepts are present in the morabaraba game: field, ratio, proportions, geometrical figures, numerical patterns.

Considering that the board has a maximum of 24 spots, it, therefore, requires excellent memory and advanced mathematical knowledge of permutation to predict an outcome" The following mathematical concepts: area, ratio, proportions, geometric figures, numerical patterns are present in the morabaraba game. Morabaraba also improves mathematical skills such as logic, reasoning and constructing, calculation accuracy, interpretation, and identification.

13. Umkoponi (moruba mufuva)

This is primarily a men's game-used during the war, as a result, no women played the game as they were not allowed to go to battle. Men played it most when they went to the mines in the Gauteng Province; however, both boys and girls play the game in recent days. (SASC, from 2001:3). The intention is to play the game until one player loses all their "cows."

14. Rules of the game

The number of holes and the size of the play space determines how many players there will be. Boards that have four rows and twelve holes each are the most common. Players place two small pebbles in each hole and these are also called cows. Any player (or team) is only permitted to use their side of the play area. A gamer, on a turn, takes the items of one of their holes, which must contain two stones, and allocates them one by one to consecutive holes on their side. When the last stone drops into an empty pit it expands its content in the same direction into another lap. The move finishes when the last stone is placed into an empty hole. The last stone dropped into an empty hole inside the inner row will be struck if there are stones in the opponent's opposite line while the stones in the outer row are captured.

The captured stones will be excluded from the board of play. If a player has only singletons, they can move them but only in empty holes. At the end of the game, the player who still has stones is determined to become the champion. It is a tie when the board repeats its position, without catching anything.

15. How children benefit from umkoponi

The pits in the umkoponi serve as memory cells. The umkoponi can also be used as a record of transactional activities. Through playing this game, children learn to be logical thinkers and practical solvers

16. Amageydi / amahege (also known as malepa)

Amahege is a string figure gates game that's popular in many parts of South Africa with children (Mosemege, 2015). This game's goal is to create as many patterns and shames as possible. The winner is the one who creates more complex forms than the other does.

17. Rules of the game

The rules of string figure gates are as follows:

1. Beginning from the easiest gate to some of the most complexes, expertise is often determined by the most complicated or the largest amount of gates.
2. Individual gates may be generated from those of the simpler forms. For example, Gate 4 can be created from Gate 2 by adding 2 gates continuously via a particular method;
3. Different instructions could be used to make the same gate, and often competition to make the gates can be based on the various ways a player knows about making the same gates.

1. How children benefit from amahege

Children learn about different/different geometric figures, the relationships between different figures, and the generalization of these relationships. The children know in depth the following:

1. Variety of Geometric Shapes and Figures: The following geometrical figures can be defined in any string figure gate: angles, triangles, quadrilaterals (especially rectangles and squares).

2. Patterns, Relations, and Functions: The analysis of the String Figure Gates shows a variety of relationships between triangles and quadrilateral, quadrilateral and intersecting points, and the generalizations arising from those relationships.

3. Symmetry: When working with gates a variety of types of symmetry can be found. Most gates, especially numbered gates, exhibit bilateral symmetry. Some of the gates have reflex symmetry while others have rotation symmetry. It can also show radial symmetry; translational symmetry; and antisymmetry.
4. *Igqhubsi* (also known as *kghati* and rope skipping) This is an indigenous children's play game. This game teaches skills counting, balance, and speed, as they have to adapt to the pace of the spinning rope.
5. Rules of the game - The counting happens when the player skips. Players may either compete to see who skips highest or the most. The game can be played individually or in pairs. The game requires a minimum of three players which two hold the rope at each end and one remains in the middle, jumps, and counts while the rope is spinning.

6. How children benefit from Igqhubsi - This game teaches children how to count, to measure, speed, and balance. It further teaches them how to be critical thinkers and the importance of teamwork

The significance of these games in the Mathematics classroom

The indigenous Ndebele games provide teachers with an opportunity to explain mathematical concepts for learners, such as counting, shapes, and logical reasoning. These games are also encouraging learner experiences. The learners must move around during the game, demonstrating why they do these movements. The comprehension of the learners will also give them the confidence to voice out in the classroom. The games may be played in a class, or as a competition between classrooms. Teamwork, leadership, and cooperation are promoted in the games as well. According to Mosimege (2015), if the learners develop the mindset of playing these games together they will be capable of working or experiment in a team together. The planning of group work in the classroom therefore makes it easier for the educator.

Chikodzi and Nyota (2010) contended that indigenous games have the benefit of having teamwork and tolerance for the learners. In an atmosphere where the views of others are respected and accepted, students are encouraged to participate without being pressurized into the class discussion. The indigenous Ndebele games have sets of rules all players can know and follow. Compliance to the laws of such plays may be applied to the study of mathematics. Therefore, learners must be acquainted with and follow at all times some of the rules regulating mathematics analysis. The language also plays a critical role in the learning process, so it is also crucial for indigenous languages to be utilized as teaching and learning mediums (Nkopodi & Mosimege, 2009).

Indigenous Languages retain myths, practices, history, and identity according to Mkhize (2018). For Africans, indigenous languages represent the legacy of their ancestors. Therefore, it is they must take care of them because the indigenous knowledge (stories, practices, legends, songs, values, myths, prayers) also disappears when an indigenous language disappears. Also, Prah (2006) contended that indigenous languages comprise accessing a

world of culture and an alternate origination of the world. The fortune of indigenous languages is a legacy that ought not to be lost. Hence, they are critical to be utilized for the medium of instruction in schools.

Policy frameworks on the integration of IKS in the school curriculum.

Several studies have expressed IK's importance and the need for proper contextualization of educational processes within local knowledge and language. Such a status quo will result in relationships between the school, the education system, the family, and the broader community. The South African Curriculum 2005 endorsed IK for inclusion in schools. Also, it considered the development of restricted material and the convenience of various methods of teaching and learning (Education Department, 2002). It was in no way clear what this might mean for teachers, teacher trainers, and communities (Chisholm, 2000). In her foreword to the Curriculum and Assessment Statement of 2011, the current Minister of Basic Education, Motshekga (2009) argues that despite its constraints, the new educational plan is gradually applicable to learners in a different and multicultural society like South Africa than the apartheid curriculum.

Further, she justifies the different amendments that the curriculum has experienced since its origin in 1997 based on experience and the requirement for change of the South African society. However, a lack of practical application of IKS in the curricula has created a void, specifically a gap in how IK is incorporated into South Africa's basic education curriculum. This disparity is due to the simplistic way IK has been integrated into the education system, mostly with curriculum packaging continuing to be skewed in terms of a worldview that represents relevant knowledge. The continuous evaluations of the curriculum, from the C2005 to the National Curriculum Statement (NCS) to the Curriculum Policy Statement (CAPS), have kept on downplaying the African paradigm. This has created a gap that has prompted IKS coordination to be non-functional and inauthentic in the curriculum for basic education, thus triggering a transforming educational system in South Africa.

The Cabinet approved the Indigenous Knowledge Systems Policy for South Africa in 2004, and the National Indigenous Knowledge Systems Office (NIKSO) was opened in the Science and Technology Department in 2006. Consideration was given to involving IKS in the areas of education, commerce, agriculture, research, law, languages, arts, social sciences, and health. The 2004 IKS policy acknowledges and affirms the IKS's vital position in mathematics and science education. The policy suggests that teachers of mathematics and science should integrate indigenous knowledge into their lessons. The inclusion of IKS at all levels of education in South Africa and Africa as a whole will be advantageous for learners as it will boost the quality and efficacy of education by offering an education that is in line with their inherent world views, attitudes, language, and costumes.

Regarding educational content, consideration, and interaction within curricula and educational methods between indigenous knowledge and modern knowledge systems will help in preparing learners for the broader world (Mosimege 2004).

The South African Constitution (1996) perceives the rich decent variety of its populations by cherishing official status in 11 of those languages, for example, English, Afrikaans1 (the previous official languages from 1910 until the advent of democracy in 1994) and nine African languages which are: Sepedi, Sesotho, Setswana, Tshivenda, Xitsonga, siSwati, isiNdebele. According to subsection 29(2) of the Constitution of the Republic of South Africa, everyone has the right to obtain an education in the official language or languages of their choosing at public educational institutions where such education is fairly achievable. It is clear from the Constitution that the principles of justice and practicality, as well as the need to correct the legacy of previous racially biased laws and practices, will limit the ability of individuals to obtain an education in the language of their choice.

Conclusion

Indigenous people learn to explore knowledge by doing, living, and being in their cultural context, which is aligned with the constructivism theory, the teacher needs to direct and encourage the learners. In line with the constructivist approach, the paper argues that Ndebele indigenous games need to be incorporated into mathematics teaching and learning in this era of decolonizing education and using indigenous expertise in the curriculum. The Ndebele children are among South Africa's disadvantaged ethnic groups who do not enjoy the privilege of learning in the classroom about their indigenous knowledge. Thus, embracing local cultural games in teaching and learning mathematics allows AmaNdebele children to participate in their languages while discovering mathematical ideas and concepts in games, making teaching and learning mathematics culturally relevant, practical and pleasant.

Recommendations

Considering the importance of IKS in the modern classroom, this paper recommends that Indigenous Knowledge Systems needs to be incorporated into the school curriculum to make it feasible and conceivable for learners to learn mathematics that relates to their cultural background. Educators need to reflect and use indigenous cultural traditions in mathematics teaching that can enhance learning in this period of African Rebirth and Renaissance and such will also protect and preserve the culture and identity of African people.

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