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Grade 5 Learners' Geographical Knowledge in English

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ABSTRACT The aim of the paper is to investigate Grade 5 learners' geographical knowledge regarding the selected prescribed concepts they had to learn through the medium of English which is their third additional language. The paper also assessed the learners' awareness of these concepts in their primary language which is Tshivenda.The research was conducted among 100 South African learners from the Thulamela Municipality, Vhembe District within the Limpopo Province. A questionnaire was administered to collect data on whether the learners possessed a conceptual awareness of the geographical terms prescribed for Grade 5 learners. The results revealed the majority of the learners (91%) were not conceptually aware of the four geographical concepts of the twelve in Tshivenda, their mother tongue. Most of the learners knew geographical concepts (directions) better in English than they did in Tshivenda. The assumption being that they came into contact with these concepts at school where they learnt English and concepts at the same time. The conclusion drawn from the study was that although learning through the medium of English is considered difficult, learners in this study were able to acquire concepts and the English language simultaneously.

INTRODUCTION

Most learners in South Africa are required to study all the subjects in English as soon as they are in Grade 3 (LOLT 2010). Learners seem to experience many difficulties in learning through the medium of English, as they do not possess the relevant conceptual knowledge (Lambani 2001). Conceptual knowledgeis defined as the knowledge of classifications, principles, generalizations, theories, models or structures pertinent to a particular discipline or area (Web 2014). Richards et al. (1992) explainsthat a concept isthe general idea of meaning that is associated with a word or symbol in a person's mind. In a school setting, language is used as a means through which information or meaning is conveyed (Faucconier 2010) to learn or teach various subjects. Geography is one of the subjects taught in primary schools. This subject is an important means needed to produce meaningful and potentially transformative learning experiences for all actors involved in the process (Conway-Gomez et al. 2011). It is a way of knowing how the world came to life through an active engagement informed by experience, observation and language.

Many learners in rural schools are only exposed to English in the formal school contextand not in their immediate environment (Ferreira 2011). Therefore, younger second language learners need to believe that they can be successful in learning English as a subject and inlearning all other subjects through the medium of English (De Villiers 2000). Taylor and Prinsloo in Ferreira (2011) attest that language, and in particular proficiency in the medium of instruction (English), is the largest single factor that affects learner performance at school. As English is the practical option for teaching learners in South African primary schools, learners have to succeed nonetheless. Halocha (2004) states that primary school learners have to develop a sense of how their locality is linked too ther places. They should also understand how the links have allowed the locality to change over time through the knowledge of geography.

Geographical knowledge does not only benefit people within their own locality, it is also part of the process of enabling people to be more understanding and caring about global environment. This includes people, communities, species and the natural world onwhich all people depend (Cattling 1998). Taylor (1991) adds that geography deals specifically with the real world and learners are educated in both personal and social context. They learn to make sense of the world around them and gain a better understanding of the variety of physical and human conditions on the earth's surface. They learn to develop a sense of place, which is crucial to survival and development. It is important that learn-

ers grow to understand and appreciate the social setting in which they live for the sake of the environment of the community, including their immediate environment. Hence the need for the knowledge of geographical concepts gained through the English medium.

Therefore, teachers have to develop the learners' geographical academic knowledge through the use of language, which is vital to their success in the classroom. As geography contains certain unique concepts and demanding technical vocabulary learners' active involvement is also key to success (Bradley and Bradley 2004). Geography teachers, therefore, have to teach learners the specific academic language which learners need in order to question and explain, to analyze and evaluate evidenceand to make conclusions and justify them. Teachers have to present the language of geography and help learners notice key grammatical patterns and key content vocabulary. By so doingthe learners can effectively become aware and communicate their concepts of geography (Lambert and Morgan 2011). Learners at Grade 5 level are required to learn concepts such as cardinal directions, solar system (sun and moon), ecosystem (natural resources water/rain, river, fishing and birds) and transportation and communication (cell phone).

Thomas-Brown (2011) stresses that geography gives students the opportunity to encounter places and environments locally and globally. Therefore learners' understanding of geographical or cardinal directions is crucial. At Grade 5 level the learners are taught basic and complex directional skills so that they can navigate nature and the greater biosphere. After learning basic skills they can master mapping techniques, latitudes and longitude lines and the use of GPS. Learners should be able to know where they are located and explain directions with ease (Parma et al. 2009). They should understand that the sun rises in the east and sets in the west and can be used to approximate time from the sun's location, especially in rural areas. Learning about cardinal directions can also give learners a better understanding of geographical location. In order to follow this system of north, east, south and west it is important that learners be taught to identify their left and right sides. Thereafter, the knowledge of cardinal directions can be reinforced by teaching learners to use a compass, which is a device used to determine geographic direction (National Geographic 1996-2014). Furthermore, in order to move from one point of direction to another and depending on how far the place is, transport is required.

Therefore, transportation (any device used to move an item from one location to another) is one of the geographical concepts which primary school learners have to be aware of. The purpose of transportation is to overcome space which is shaped by a variety of human and physical constraints such as distance, time, administrative divisions and topography. There would be no transportation without geography and there would be no geography without transportation. The goal of transportation is to transport the geographical attributes of freight, people or information from an origin to a destination, conferring on people an added value in the process (Transportation 2014). Modes of transportation like trains, ships,boats, planes and motor bikes are unfamiliar to learners in rural areas. This means that teachers have to explain these concepts in such a way that learners have an idea of what they entail so that they form in their minds about the unfamiliar. As suggested by (Whitehead 1990), learners would be assisted in imposing some order and pattern on the difficult and various raw experiences. Although the target language (English) forms a barrier to learning, if learners have background knowledge of a concept, that difficulty or barrier can be easily overcome because learners would have already had an idea of what is being taught.

There is a need for learners to understand the natural resources, such as water, in order to improve the knowledge of the world's water resources. Most learners in rural areas are exposed to the water concept through the rivers and canals and do not actually think that it is a scarce and expensive commodity. The learners in the cities and towns have a different idea about water because it comes through the water taps and is paid for. The difference in conceptual knowledge is that some learners understand it from a natural point of view while others do not. The learners' conceptual knowledge regarding water develops their understanding of the water cycle. If the knowledge is gained at an early age, it will develop a tactile model of the water cycle and then relate these ideas to the importance of water conservation. Fresh water on earth is used over and over and it is a critical resource issue facing humanity (Hinrichsen and Tacio 2014). Already there are areas where water is a scarce

commodity. Therefore, learners should learn to appreciate this commodity and understand thatthis concept in both English and their primary language is crucial. They should also understand that the availability of water depends on how full or low the rivers and dams are.

Rivers are natural dug canals whichthe water usually flows downhill. Rivers are healthy environments for wild life and were available before the existence of people. They sometimes have natural waterfalls rushing down into them and rapids contained in them. When rain falls on land some water soaks into the ground and some runs downhill. Rivers are natural gushesof water,which start on the hill and eventually flow down to the sea. The land is usually steeper where rivers start and the water travels downhill quickly. There may be many tributaries joining the main river and sometimes waterfalls (Unraveling Rivers 2014). The importance of the rivers is that they carry water, organisms and important gases and nutrients to many areas. They also help drain rainwater and provide habitats for many species of plants and animals. As they make their way to the sea, rivers help shape the features of the earth. Rivers are travel routes for people and provide the power for hydroelectric plants (Rivers and Streams 2014). Learners have to be aware of the importance of natural resources such as rivers whether they are around them or not. They should have a general idea of what rivers are all about. In the Vhembe area there are several rivers, and some are actually used to determine boundaries. Therefore, through language, learners from towns should organize (Faucconnier 2010) and understand the meaning of the concept of river. Rivers and/or fresh water ecology provide a haven for fish and science-based support for applied aquatic conservation (Smith and Mather 2014).

Fishing also forms part of the ecosystem as this takes place in rivers, dams and largely at sea. The fishery sector provides vital and unique nutritional benefits such as vitamins, minerals, and micronutrients. The fishery sector has a significant impact on food and nutrition security. It provides employment such as fish processing, fish trading and boat building (PRSP 2002). The fishing sector in the world has grown more rapidly thanboth population and employment in agriculture is growing (Finegold 2013). Learners within the Vhembe District are not familiar with large scale fishing, the importance of the fishery factor and how these positively impact the economy. It is therefore necessary that learners understand the concept fish in the target language as early as primary school level as further learning will be facilitated by prior knowledge. There is interdependency between fish and birds as some birds feed on fish from fresh water.

Birds are critical links within the vast food chain and webs that exist in the ecosystem. They serve as biological controls because they consume insects such as mosquitoes, which if not dealt with will be too many and dangerous for people in areas infested by them. They serve as bio-indicators because migratory birds inform people about the health of the environment and its impact (IOWA Nature Mapping 2009). They are the greatest indicators of climate change. Their behavioural disappearance can help us in evaluating the dangers in the environment which humans cannot do. Some birds are agents of dispersal and therefore become important pollinators. Some trees spread to other placesbecause some trees are pollinated by birds. Birds are predictors of natural disasters (Balasubramanian 2010). In most rural areas, birds are used for relish, which negatively impacts the environment. Apart from being links within the ecosystem, birds themselves add enjoyment to people's lives because of their bright colours and the songs and calls which they make. Learners should therefore have knowledge and understanding about the protection of the wildlife such as birds. However, the temperate latitudes caused by the position of the sun influences the birds to migrate for their breeding season. There is a relationship between the sun and the birds and learners should understand what the sun entails.

Robert (2013) states, that the sun controls the earth's temperature and influences the climate. The sun, which the earth orbits, is one of the many stars in the galaxy. It is the midpoint of the solar system, and it is the only foundation of energy for all living things on earth. The sun is the source of light and heat for the planets in the solar system. Life on earth would not exist without the heat and light provided by the sun. The sun's gravity also helps keep the earth in its orbit, causes weather phenomena and plays a role in ocean tides (Importance 2014), The energy from the sun is an ever-present and powerful resource that people should use instead of searching for more fossil fuels (Space Facts

2014). Solar energy is the cheaper and safer energy used instead of electricity in South Africa currently. As a result, learners should understand the concept for its being ecofriendly. While the earth orbits around the sun, the moon orbits around the earth once a month. The sun determines day and night while the moon determines the months.

The moon is a natural satellite of the earthand is visible at night by reflected light from the sun. It is the fifth largest natural satellite in the solar system (Space Facts 2014). Therefore, it is important for learners to understand the concept of the moon because of the way in which it interacts with the earth. The moon controls the ocean tides which allow the life of the ocean to be exposed in a short period of time. The moon also helps the earth not to spin much faster because of its gravity pull on the earth (Astronomy Science 2009). Grade 5 learners have to understand the connection between technology and thesolar system as well asthe communication concept such as a cell phone which is charged through the use of solar charges or solar energy.

Technology is the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment, drawing upon such subjects as industrial arts, engineering, applied science and pure science (Howe 2010). According to (Incekara 2010)integrating technology into geography improves learners' geographic skills. Therefore a cellular phone forms part of the applied science that learners should learn. A cellular phone is a telecommunication device that uses radio waves over a networked area (cells) and is served through a cell site or base station at a fixed location. This enables cells to transmit wirelessly over a wide range to a fixed landline or via the internet. The cell phone is a communication concept which takes theplace of wrist watches, personal diaries and music to alleviate stressand entertain. It can act asanalarm whichwakes people up in the morning and remindsthem of events. The cell phone has multipurpose functionality when used as a calculator or camera and provides internet access forcommunication (Importance of Cell Phones 2009). It can be used as a source to access study material in schools where learners'of a more affluent socio-economic status attend. The understanding of this device by learners from rural areas is of importance for their future technological advancement.

METHODOLOGY

Research Design

An exploratory or analytical study design was used to conduct the study. Exploratory study identifies causal links between factors or variables that pertain to the research problem. It is used to gain familiarity with a phenomenon or acquire new insight into it, in order to formulate a more precise problem or develop hypothesis (Wiki 2013). The researcher in this paper used the explanatory study design because she wanted to determine if Grade 5 learners have mastered in English and Tshivenda the geographical concepts they needed to know. The lack of knowledge in this area is viewed as one of the factors which contribute towards a poor understanding of global issues negatively affecting the environment and development in general.

Population and Setting

The study was conducted in Thulamela Municipality, Vhembe District within the Limpopo Province in South Africa. The population is composed largely of Tshivenda speaking learners residing in rural traditional villages. The learners seemed to have an opportunity of being exposed to the natural environment.

Sampling

Random sampling was used for the study because a complete sampling frame was available before the specific sampling method was implemented. A sampling frame is a numbered list of all the elements in the population from which a sample is drawn (Botma et al. 2010). A list of all the learners, was obtained from the five schools within the Thulamela Municipality, Vhembe District Regional Education Office. Twenty learners from each of the five schools were chosen as subjects.

Research Instrument

The data collection instrument for this study was a questionnaire. The questions included closed-ended items. The respondents answered

the questions orally and the researcher recorded the responses on each questionnaire. The instrument was first tested amongst 10 Grade 5 learners from the Sibasa circuit. Their responses confirmed that the questionnaire was valid and suitable for the study (Griffiths 2010).

Data Collection

After obtaining permission to conduct the study, the researcher personally travelled to 5 schools where she distributed questionnaires to each individual learner showing them the pictures and recording the responses. This method ensured a 100% response rate.

Data Analysis

Data analysis was performed to place information gathered in numerical form and manipulated according to arithmetic properties in orderto derive meaning from it (Monnette 2005). Descriptive statistics were used to analyse data. The Statistical Package for Social Sciences SSPS version 19 was used to analyse the data.

Ethical Considerations

Permission to conduct the study was obtained from the Vhembe Education Regional Office. Informed consent was sought from the participants. Participation in the study was voluntary. Confidentiality and anonymity were maintained throughout the study. The participants were not subjected to any harm. The participants were informed that they would not receive any remuneration in money or kind for taking part in the study. However, they were informed that their participation was highly appreciated because the information gathered was to be used to help the researchers share the results with the world.

RESULTS AND DISCUSSION

The study gives a picture of the learners' knowledge of geographical concepts. The findings are presented in Table 1showing the learners' competence in this regard.

Table 1: Geographical concepts

Concept	*Tshivenda*		*English*	
	Number	*Percent-responses*	*Number*	*Percent correct*
East	100	22	100	60
North	100	8	100	82
South	100	10	100	83
West	100	10	100	89
Transportation	100	92	100	87
Cell phone	100	98	100	96
Moon	100	8	100	57
Sun	100	95	100	85
Rain/water	100	78	100	74
River	100	56	100	75
Fishing	100	99	100	90
Bird	100	98	100	73

Knowledge of Cardinal Directions

Ninety-one percent of the learners did not possess an understanding of all four geographical or cardinal directions in Tshivenda. They knew the concepts better in English as 86% responded correctly. Most learners knew 'west' in English, but 90% were unable to recode it into Tshivenda. Only 80% of the learners were familiar with 'north' in Tshivenda. It was expected that all the learners would know the direction as they came from the Northern Province, Limpopo. They seemed to know the directions better in English than they did in Tshivenda,their primary language, and it can be assumed that they came into contact with these concepts and words simultaneously at school. As they learnt through the medium of English, it is reasonable to deduce that they acquired the concepts and words (in English) simultaneously. Nonetheless, what mattered was that learners understood the concept of direction. The finding reinforces (Thomas-Brown 2011; National Geographic's 1996-2014) the assertion that understanding of cardinal directions gives learners a good sense of geographical location locally and globally.

Knowledge of Sun and Moon

Ninety-two percent of the learners did not know 'moon' in Tshivenda and 57% were able to recode the concept into English. The implication might be that they did not observe the moon as it appears at night when young children are expected to be indoors. The finding contradicts the concept that learners should understand regarding the natural satellite in the solar system (Space Facts 2014). However, 95% of the learners knew the concept 'sun' in Tshivenda and

85% could recode it into English. The learners' lack of understanding of the moon in their language suggests that learners understood the relationship between the moon and earth where they resided,in English, as suggested by (Astronomy Science 2009; Robert 2013and Space Facts 2014).

Knowledge of Natural Resources: Water/Rain and River

The majority (78%) of the learners knew the concept 'water' in Tshivenda and 74% could recode the concept into English. Learners from two schools were familiar with the concept 'river'. The reason might be that they came from rural areas where there are several rivers. They knew the concept better in English than in Tshivenda, as 75% could recode it into English. Therefore, background knowledge or prior knowledge and the environment seemed to have impacted positively on the learning process as evidenced by their performance Hinrichsenand Tacio (2014). The finding emphasizes the use of water in life and the learners' understanding of this concept would help them appreciate and conserve water which seems to be a scarce commodity in some communities (Rivers and Streams 2014).

Knowledge of Fishing and Birds

Ninety-nine percent of the learners possessed the concept of 'fishing' in Tshivenda and 90% could also recode this into English. 90% of the learners knew the concept 'bird' in English while 73% of the learners had the knowledge of the concept 'bird' in Tshivenda, their mother tongue.The learners' understanding of the concepts 'fishing'and'birds' is an indication of interdependency amongst people and the environment as suggested by (Balasubramanian, 2010) that birds can be predictors of natural disasters. Therefore, the knowledge of the behaviour of birds is valuable as early as primary school level in order not to destroy them.

Knowledge of Transportation and Cell Phones

Ninety-two percent of the learners knew the concept of transportation in their mother tongue. 87% of the learners possessed the knowledge of transportation in English. Ninety eight percent of the learners knew the concept 'cell phone' and only 2% of the learners were unable to recode it into English. It is assumed once again that learners acquired the concept and the English word for it at the same time. Cell phones are also widely used and it is a concept that almost every learner knew in English and only 4% could not recode into Tshivenda. The finding supports (Importance of Cell Phones' 2009) the claim that cell phones have multipurpose functionality. Also, the learners' conceptual knowledge of transportation confirms (Transportation's 2014) the proposition that people are dependent on transportation as geography and transportation are intertwined.

CONCLUSION

The study found that the majority of the learners were knowledgeable in the geographical concepts. They were able to understand the concepts in both English and Tshivenda, their mother tongue. However, in most instances they knew concepts better in English than in the mother tongue. The reason might be that they were first exposed to the concepts in English.

RECOMMENDATIONS

There is a need for the school system to support the learners by supplying the schools with the necessary resources for further advancement of the current learners. It is also crucial for teachers to provide background knowledge relating to difficult concepts learners are supposed to learn.

IMPLICATIONS OF THE FINDINGS

The study revealed that the learners are competent in geographical concepts that they should learn and know at school because they are already exposed to some of the concepts at home or in their natural environment. It also revealed that it is possible for second language learners to master concepts taught through the medium of English which is not their primary language. The findings inform those concerned about the learners' knowledge of geography and learners'awareness. The study is also of importance to all the stakeholders in the education system and the world at large.

LIMITATIONS OF THE STUDY

The study sought to investigate the learners' understanding of geographical concepts in both English and Tshivenda, their mother tongue. The investigation focused on geographical concepts identified from the Grade 5 geography text books. The study findings were based on the results sampled from 100 learners randomly selected from the Thulamela Municipality schools of Vhembe District in the Limpopo Province. The results might only be limited to the learners within the Thulamela Municipality.

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