THE DYNAMICS OF STUDENTS' ACCOMMODATION SPACES: IMPLICATIONS FOR THE ACQUISITION OF PEDAGOGICAL CONTENT KNOWLEDGE

Hlengiwe Romualda Mhlongo, Noloyiso Nongalo & Manthekeleng Agnes Linake

ABSTRACT

This article aims to explore the dynamics of students' accommodation spaces and implications on the acquisition of pedagogical content knowledge. The implication of students' lacking conducive accommodation to learn and live in is a worrying concern, and it need immediate attention as it contributes to their performance. The paper employed a qualitative approach, adopted an interpretive lens, underpinned the Risk Environment Theory; and data were collected through the use of focus group semi-structured interviews. The convenience sampling procedure was followed to select 6 students as participants from three South African universities, participants were B.Ed. students of different levels selected from the faculties of education. Data were analysed using Thematic Analysis. Findings revealed that the lack of proper accommodation for students contributes to their poor performance in academic activities. Findings also showed that if students are provided with decent, safe and affordable accommodation, they have less stress and that makes them fully focus on their studies. In addition, the findings revealed that the students complained of regular break-ins and loss of their gargets and other personal valuable belongings. They further mentioned the issue of water cut, that is on and off around the campuses. This resulted to poor sanitation and unhygienic conditions. All these affect students' acquisition of pedagogical content knowledge as they get to classes very late or end up missing other morning lectures. It can be concluded that, this challenge of the shortage of students' accommodation could result to negative implications that include underperforance and dropiing out of students if it does not receive the urgent attention it deserves.

Keywords: Accommodation spaces, dynamics, implications, acquisition, Pedagogical Content Knowledge

INTRODUCTION

The introduction of paper contains the nature of research work, purpose of work, and the numerous studies have been conducted around the issue of the students' accommodation (Gormley (2015). While so much research has been done to indicate the implications of student accommodation on the acquisition of *Pedagogical Content Knowledge* (PCK) there is little said on its implications on the acquisition of pedagogical content knowledge. In this view, we argue that in the last few decades, enrolment in higher education institutions matched the available students' housing. Surprisingly, the current situation in Universities regarding the students' accommodation has been

precipitously exceeding the limited institutions' student housing which generates striking demand in the private housing rental market. Thus, Higher Education Institutions (HEI's) had to start catering for larger numbers of students requiring university accommodation as more students are studying away from home. In the same vein, Zubairu and Suleiman (2016) indicating that a shortage of accommodation is a contributing key factor to students' poor performance on the acquisition of pedagogical content knowledge. Ross, Cousins, Gadalla, & Hannay (1999) affirm in agreement with (Zubairu and Suleiman, 2016) that student housing is an entity.

In addition, this paper argues that South African Universities, are still linked to historical issues such as physical and cultural elements as is still a taboo due to the apartheid era unlike other universities globally that are influenced by modernity (Chiguvi, and Ndoma 2018). There are fewer developments in South African Universities, especially on students' residences. This is echoed by Adeleye (2014) who highlights that the foreign nature of the South African Universities is attached to the issue of the historic land question of deficiency in South Africa as a developing country. Hence we maintain that there should be a transformation in all higher institutions on both spaces of learning and student housing as this affects the students academically as there is a crisis in their residences. With reference, the total number of residential students enrolled in universities is much higher than the number of residential beds available for both undergraduate and postgraduate students Consequently, most of the South African Universities do not accommodate students with disabilities, both in residences and lecture halls. This means that the buildings are still outdated and no renovation ae done to accommodate the students using the wheelchairs.

Similarly, a report done by the Department of Higher Education and Training (2011) supported this and indicated that "being housed in a safe, well-managed residence is both socially and academically beneficial for students, particularly those from poorer backgrounds". Decent, safe and affordable student accommodation allows students to focus their energies on their academic performance, therefore improving the chances of academic success (Department of Higher Education and Training 2011). In the light of the scarcity of students housing, the majority of the students have no choice, but to stay off-campus. This affects their lifestyle and affordability due to geographical location. In agreement, Smith and Alexander (2010) posit an increase in additional accommodation in universities.

Based on the arguments above, these conditions affect students' acquisition of pedagogical content knowledge. Hence, some of them fail to attend classes, write tests and fall back for assignments' deadlines. In addition, research has suggested that students' accommodation matter; and pedagogical training are positively related to both teaching and learning (Goldhaber & Brewer, 1997 and Monk, 1994). In this view, when lecturers assign the tasks without students responding positively, both their outcomes and student learning gains are affected negatively. Hence, this problem is still existing because students are less effective in the classroom, as a result, they are more likely to drop out. In this regard, this paper intended to explore the dynamics of students' accommodation spaces and their implications on the acquisition of pedagogical content knowledge.

THE CONCEPTS OF ACQUISITION OF PEDAGOGICAL CONTENT KNOWLEDGE

Scholars such as Pascarella and Terenzini (2005) highlighted that in the United States, and to a lesser extent the UK, there is a lack of accommodations on campus and most students who are staying off campuses are affected academically compared to those who live on-campus accommodation, as they have higher retention rates than commuter students, and also exhibit higher scores on developmental scales.

Gormley (2015) concurs with the above statement by stating that a 2009 Higher Education Funding Council for England report into students who lived at home reported that first-year students living with their parents had a high rate of non-retention at 10% significantly higher than resident students who had a non-retention rate of only 4%. The report also noted that students whose parents are from higher socio-economic groups are less likely to live at home in their first year of study. The main challenge is at the transition level whereby students from the second to the third level want to reside on campus. Chickering and Reisser (1993) view this as a worrying time for both students and their parents as they can be compounded by the stress of having to queue for off-campus accommodation which in many instances can be more expensive and of lesser quality.

Coming back to Sub-Saharan African Universities, in contrary to the UK context, Thomas, (2012) highlights that the main challenge is with first-year students compared to UK as most of them are coming from a poor background and far from the Universities, in particular, those from rural areas do not get accommodation on campus. In addition, recent research on the transition from school to higher education, commissioned by the National Forum for the Enhancement of Teaching and Learning, highlights the impact on students who commute long distances to and from campus. In addition, the report highlights that "as commuting times increase, so too does the transitional challenge" (Chickering and Reisser, 1993 p 173). In addition, a longer commute is likely to be more tiring and may have a knock-on impact on academic aspects. Commuting times likely affect students' ability to engage with their peers, in particular, to participate in extracurricular events and social activities including take-home tasks.

This is what informed the researchers to conduct this study as in many countries, such as sub-Saharan Africa, the governments have been the main provider of students' accommodation for public higher institutions. As a result of limited government resources, governments in developing countries are unable to meet adequately the demand for accommodation for all public higher institutions. In this regard, governments have involved private hostel providers to participate in building hostels and halls of residence for students in order to meet the demand for more accommodation infrastructure. This is a worldwide crisis due to the lack of provision of accommodation to the students' population that takes different dimensions.

Based on the arguments above, the literature reviewed was guided by the dynamics of students' accommodation spaces and its implications for the acquisition of pedagogical content knowledge. Thus, the following sub-topics emerged from the title of the paper: *Pedagogical Content Knowledge (PCK)*; acquisition of pedagogical content knowledge; demand for on-campus accommodation; international students, and students with disabilities.

Pedagogical Content Knowledge (PCK)

Pedagogical Content Knowledge has been defined as "the body of understanding, knowledge, skills, and dispositions that a teacher needs to perform effectively in a given teaching situation" (Wilson, Shulman, & Richert, 1987, p. 106). Although many scholars agree that PCK is a distinct knowledge domain, various models have been proposed to explain what specifically constitutes PCK (Cochran, DeRuiter, & King 1993; Fernandez-Balboa & Stiehl, 1995; Grossman, 1990; Magnusson, Krajcik, & Borko 1999; Marks, 1990; Shulman, 1986, 1987). Most scholars' conceptualisations of PCK are composed of four common components: (a) knowledge of students' understanding, (b) instructional strategies and representations, (c) curriculum, and (d) the teacher's values and beliefs about education.

All models of PCK cited above highlight the importance of how teaching context- and conducive environment influence the students' performance and expectations and outcomes. The Fernandez-Balboa and Stiehl (1995) model emphasises the importance of subject-specific PCK, similar to the Magnusson et al. (1999) model, which includes teaching context. There has been a consensus among scholars that PCK models should include teacher transformation of knowledge (i.e., using teacher knowledge in various ways to support student learning), with some form of instructional strategies to teach content knowledge to students, and that the teachers' knowledge of subject matter influences instructional practices in subject areas. Models of PCK by Fernandez-Balboa and Stiehl (1995) and Magnusson et al. (1999) have specifically stressed the influence of PCK on a teacher's instructional decisions and strategies that should be supported by the students' frequent attendance, responses, and performance as it is both students and lecturers' responsibility for the teaching and learning to happen and become successful.

Acquisition of Pedagogical Content Knowledge

Grossman (1990) identified possible sources of how teachers acquired PCK, including teacher education experiences, subject matter knowledge acquisition, and teacher observational experiences. According to Grossman (1990), teacher education courses are typically organised so that prospective teachers will acquire subject matter knowledge in content-specific courses and acquire pedagogy in separate courses that focus on how to teach subject matter. Furthermore, teachers' preparation in subject-specific content can influence decisions about content and sequencing, conceptions of what it means to teach a specific subject, and the selection of particular curricula. Other scholars (Gess-Newsome, Lederman, & Association for the Education of Teachers in Science, 1999; Hill, Ball, & Schilling, 2008; Marks, 1990; Veal & Kubasko, 2003) also suggest that teachers' value orientations towards subject-matter content may influence textbook content use, pedagogical strategies, and perceptions of students' instructional needs, which might have implications of space on the acquisition of content knowledge. This means that both teachers and students should be in the right space and place to be able to acquire the necessary content.

Adelaide, Anyobodeh & Abban (2016) support the idea by indicating that Universities' accommodations are usually built with the sole aim of increasing student's productivity through closeness to all activity areas and also for generating academic community spirit. This is more on study groups that are housed in one environment instead of them residing off-campus. The time is

taken to commute or trek to and from the off-campus village affect the learning period, and also put some strains on students, hence, either they fail or drop. On the other hand, Low and Cook (2003) state that many ideas about learning in the early twentieth century tended to consider the development of the individual in isolation, but by the 1920s and 1930s ideas looking at the influence of the wider context in which learning occurs; and at emotional and social influences became more common. Hence, issues of accommodation for students cannot be separated from factors that contribute to their academic performance.

Demand for on Campus Accommodation

It is an undeniable fact that the majority of university students wish to reside on campus for various reasons; hence, the demand is very high. One of the most important reasons is to avoid implications of space on the acquisition of content knowledge. Thus, students need a secure place to stay and have relevant facilities to assist them in their studies such as access to Wi-Fi, library after hours, and be able to work with their classmates on their given assignments and be able to meet deadlines and punctuality to lectures. This research was conducted, as there has been limited research on students' accommodation both international and national as highlighted earlier on. This is supported by Tinto (1993; 2012) by stating that social and academic integration of students as predictors of how they would handle challenges adapting to the culture and expectations of the higher education setting.

International Students

The Government's International Education Strategy "Investing in Global Relationships" 2010-20155 included a number of targets to increase international students in higher education institutions and these have already been achieved (Chickering and Reisser, 1993). The Department of Education and Skills is leading on the development of a new International Education Strategy 2016-2020 that is due for completion by the end of 2015. Increasing the number of international students provides another income stream for HEIs. Gormley (2015) states that the availability of campus accommodation is a prerequisite for attracting new students; in particular, international ones as students can find it hard to procure acceptable affordable accommodation in proximity to campus, as most of them are new in these areas. Thus, HEI's report that international students demand guaranteed accommodation for at least the first year at the time of recruitment (Gormley, 2015). This increases the number of international students, as they are the ones given a priority in the provision of accommodation.

Students with Disabilities

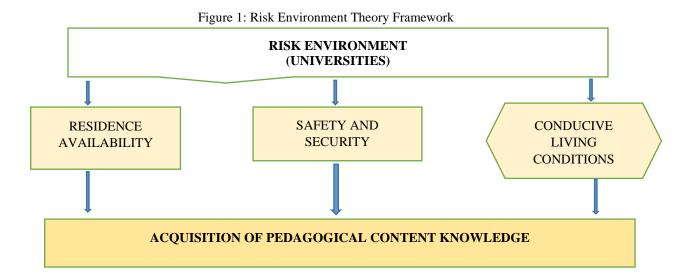
There is also currently a significant demand for students with disabilities as the buildings and other facilities do not cater for them. In this regard, there are different needs due to the various types of disabilities and not just physical mobility. Most of the universities in Sub-Saharan Africa do not have buildings and facilities to accommodate students with disabilities as highlighted earlier on in this paper and hence this study was conducted. The type of accommodation required and the level

of support services that are necessary place a particular economic demand and inclusion challenge on the accommodation provider. This has space and place, cost, and inclusion implications. Based on the discussion above, the current imbalance between supply and demand will not be resolved by known or estimated future developments as space and places project's universities are in developing countries and this cannot guarantee any changes at any time soon although the government is trying. Indeed, increased demand due to projected additional numbers will only result in a continuation of this shortfall. In this view, actions should be taken to encourage additional investment and, where feasible, bring forward forecasted projects to assist to increase and refurbish accommodations on campuses.

THEORETICAL FRAMEWORK

The risk environment theory was identified to be ideal in underpinning this paper as its emphasis is on the understanding of the social situations and places in which harm is produced and reduced. Risk environments are the physical, social, economic, and policy that are common for harm to occur (Rhodes 2002). In this instance, the social situations and places are located in university residences and the dynamics of students' accommodation spaces and their implications on the acquisition of pedagogical content knowledge. It provides a theoretical lens that seeks to understand the environmental determinants on harm as a way of creating and enabling a conducive environment in Universities.

Clarke (1997) supports by positing that the risk environment theory highlights situational and structural interventions on increasing accommodation spaces for students and security in universities. If these could be highly considered by Institutions of higher learning, the enhancement of the acquisition of pedagogical content knowledge could be guaranteed. In this view, this paper focused on universities as a risk environment that may contribute to students' satisfaction in terms of residence availability, safety, security, and conducive living conditions. Risk theory is displayed below:



RESEARCH METHODOLOGY

A qualitative model of inquiry was used for it allows for an in-depth understanding of the phenomenon under study (Maree, 2012). According to Patton (2002) in the qualitative approach, the sample is small and is purposefully selected from those individuals who have the most experience with the studied phenomenon. The qualitative paradigm based on Interpretivism, which, according to Creswell (2009) strives to comprehend how individuals in everyday settings construct meaning and explain the events of their worlds was employed. Barbie (2014) affirms that the research paradigm, once chosen, acts as a set of lenses for the researcher. Interpretivism was chosen as a set of lenses for it allows for close interaction with the participants and gains insight.

A phenomenological research design was used, as it assisted in getting the meanings of a lived experience with the phenomenon. In a phenomenological study, according to McMillan and Schumacher (2010), a researcher puts aside all prejudgements and collects data on how individuals make sense out of a particular experience or situation.

Three Historically Disadvantaged Institutions (HDIs) were purposively selected as a focus of interest for we believe that they are at the periphery with regard to the required resources for the acquisition of pedagogical content knowledge. This prompted us to investigate the dynamics of students' accommodation spaces in these HDIs, two situated in the Eastern Cape (EC), and one in KwaZulu Natal Provinces of South Africa. In this paper, only students from the Faculty of Education participated as it was convenient to get hold of them. Students were selected according to different programmes offered in the faculty to do Focus group interviews. The criteria used was to select them randomly as not all students were around campus although we considered different programmes and gender.

Sample and Sampling Procedures

McMillan & Schumacher (2010) state that a population is a group of elements or cases, whether individuals, objects, or events, that conform to specific criteria and to which the researcher intends to generalize the results of research. The population of this paper was made up of all the lecturers who were involved in teacher education, all the students doing 2nd, 3rd, and 4th year in BEd (Humanities, Arts and Culture, Natural Sciences, Economic and Management Systems) and National Diploma in Adult Basic Education and Training (ABET). Johnson & Christensen (2008) states that sampling is a process where units are drawn from a population and called a sample. A purposive sampling which is a feature of qualitative research was used to select the participants. Four lecturers and eight students in each programme were sampled purposefully. In purposive sampling, according to Cohen and Manion (2011), researchers hand-pick the cases to be included in the sample based on their judgment, their typicality, or possession of the particular characteristics being sought.

Data Collection Instruments

The study employed focus group semi-structured interviews to collect data from the three institutions, after teaching hours. Residences were observed, and two sets of interviews,

individually and focus group interviews were conducted. The typical technique was to conduct interviews with the informants directed towards understanding their perspectives on their everyday lived experience with the phenomenon which was the dynamic of student's accommodation spaces. Photographs of student's accommodation spaces were taken with the permission of the institutions.

Data Analysis

McMillan and Schumacher (2010) posit that data analysis is organising, processing, synthesising, and interpreting raw data for writing and reporting findings. In this paper, data was collected by employing interviews that were transcribed and organised accordingly. Cohen and Manion (2011) affirm that organising data is a very useful way, as it draws together all the relevant data for the exact issue of concern to the researcher, and preserves the coherence of the material. After organising data, coding was facilitated, this enabled us to identify similar categories. Data were compared, themes were underlined and patterns were identified. Thereafter, data were analysed and several themes emerged from the analysed data were crystallised to findings.

RESEARCH FINDINGS

The following are findings from the students based on the themes which emerged from data collected: a shortage of accommodation; Safety, security and health and dilapidated residences.

Shortage of Students' Accommodation

This part is required to check the state of students' accommodation on campuses. The majority of participants lamented that there is a shortage of accommodation, as a result, most of them are forced to reside off campuses and this affects their academic performance.

GA and GC respectively alluded to the above statement and GB reported,

Yes, there is a need for more residences as we are many, and some of us are forced to stay off campuses.

Similarly, GA posited, and had this to say,

Yes, we often miss deadlines of assessments submission, we come late for lectures, sometimes fail to participate in given group assessments do not have enough time for library use till late.

In agreement with the two participants above: GC stated,

We normally find it challenging to walk long distances to and from campuses as some of us do not have reliable transport to get to campuses on time due to different programmes with different time table slots.

Safety, Security and Health

This section focuses on the issues of safety, security, and health. Most of the participants had common concerns about the risk situation caused by poor and unsafe conditions such as broken doors, clogged sinks in showers, and overflowing toilets result in health hazards. In addition, they complained of regular break-ins and loss of their gargets and other personal valuable belongings. students lived in fear. They further mentioned the issue of water cut, that is on and off around the campuses. This resulted to poor sanitation and unhygienic conditions. All these affect students' acquisition of pedagogical content knowledge as they get to classes very late or end up missing other morning lectures.

For example, **GB** and **GC** said:

In the residences, the doors do not lock properly, you will find out sometimes that you leave the door locked but when you come back to the residence your laptop, your phones, and your clothes are not there.

In addition, **GA** reiterated and elaborated that,

Not happy at all due to cold water in winter throughout, no water at all sometimes around the campus, poor sanitation that is not healthy. The bath tabs and showers are not in good working condition and they are not even enough as we are many and have to share.

Lack of clean water has serious effects on students' academic performance and attendance rates and this could cause even the best students to lose momentum as they deal with stomach pains and diarrhoea from disease and hunger. Students miss class to go fetch water, or to care for sick parents or siblings.

GC also complained that,

The security company is visible although they need to be tightened up and all faculty buildings have a security guard except for students' residences where security is highly needed.

Dilapidated Residences

It transpired from the majority of the participants that lack adequate physical infrastructure adversely affect the delivery of quality teaching and learning. It emerged that the rooms did not have proper doors with handles, the walls were cracked, with holes.

GA affirmed that.

even the snakes can get in there, and the ceiling is worse, you can see through, water from the toilets, leaks, sometimes it still falls down through the roof to the bed and all the stuff.

GA further reported that there is a plan that attempts to set up standards and areas of focus for maintenance and ensure that while new buildings are being erected there is a maintenance plan that matches its development. Residences have the potential of health and safety risks, roofs are dilapidated and need serious refurbishment, the dehumanising conditions in residences, directly affect students' academic success.

GC grumbled about,

Pipe blockage, Poor maintenance, no hot water, Toilets not in a good condition etc. Residences are not conducive for group work or discussions (social interactions). These conditions and what happened in the residences affected learning.

They further indicated that water was cold throughout winter and sometimes there was no water at all around the campus. That resulted to poor sanitation that is not healthy. It also emerged that bath tabs and showers were not in good working condition and they were not even enough as the students were many and they had to share.

GB affirms that,

Sharing showers and tabs makes us get to classes very late or end up missing other morning sessions lectures.

GA,

Similarly, there are few stoves as we are many and have to wait for each other.

FINDINGS AND DISCUSSION

In discussing the findings of the study, the first result showed that shortage of accommodation for students has negative implications towards their academic performance. However, the minority confessed that they fail to meet deadlines due to transport constraints. Concurrently, the findings have shown that minorities do no reside on campuses and spend more time on the road rather than being in the lectures on time. This adversely affects their performance as they do not have time to collaborate with peers on given group tasks. Adelaide, Anyobodeh & Abban (2016) support the idea by indicating that Universities' accommodations are usually built with the sole aim of increasing student's productivity through closeness to all activity areas and also for generating academic community spirit. They further indicate that the time is taken to commute or trek to and from the off-campus village affect the learning period, and also put some strains on students, hence, either they fail or dropouts.

It was also found that a safe learning environment is defined as a place where structured learning is free from environmental, internal, and external threats to learners and personnel's safety and wellbeing, where the infrastructure of a learning environment is deemed safe (USAID, 2016). Additionally, school safety is linked to improved student and school outcomes hence a growing body of research indicates that a safe and healthy learning environment is essential for students to

maximize academic performance and learning. Specifically, recent literature students will underperform in school environments that are perceived as unsafe.

On the issue of security, the security officers should always be on residences throughout to make sure that the students are safe at all times. This should be the primary function for both students and the security officers to work closely for safety purposes. Security monitors should possess direct radio contact with the University of Minnesota Police Department and can be contacted by residents by cell phones whenever they are emergencies. In addition, there must be cameras to capture whoever enters the residences with or without permission in order to make follows for in a case where to assist in crisis situations. The students should be encouraged to make sure that their doors are locked, check who is at the door before opens up while inside and know whom to talk to when they need help.

Lastly, in all the campuses it transpired that students could not acquire knowledge and skills whilst in residences as there were no learning spaces in there. This problem of space was compounded by squatting in the rooms, where a single room was found to accommodate three or more students. In squatting, there is so-called "tenants" quarreled with their "landlord" for rent and other related issues. Although squatting was not allowed, residence staff kept a blind eye due to the shortage of accommodation in the institution. Residence staff found themselves doing counselling in cases of bad behavior and might not report such cases since they purportedly ignored squatting.

In summary, the provision of sufficient accommodation for students can improve their acquisition of pedagogical content knowledge, as there is a clear indication that a shortage of accommodation is a contributing key factor to students' poor performance in the institutions of higher learning. From the discussions that we have made, it suffices also to note that, decent, safe and affordable student accommodation allows students to put more energies into their academic performance, therefore, improving their academic success (Department of Higher Education and Training 2011).

CONCLUSION

The findings for this paper were drawn from the following themes revived from the main questions: Shortage of students' accommodation, Safety, Security and Health, and Dilapidated residences. These were aligned with the risk environment theory adopted in this paper. In South Africa, some issues are prioritized than students' residences in the university. Hence, there is always an outcry with regards to the residence issues and teaching and learning. This means that the influence of on-campus student housing on student engagement and academic lifestyle are at most, slight and indirect. In view of this, all the activities within the universities are side-lined and this has a huge impact on pedagogical content knowledge due to lack of adequate finances support. Hence, there is a lack of a conducive environment in both South African and Sub-Saharan Universities. It is difficult to address these challenges since our universities are in developing countries and they lack skills and insufficient information on how to deal with these issues. This also implicates the weakness in the issues of policies related to educational issues. Hence, the findings revealed that most universities in Sub-Saharan Africa do not have buildings and facilities to accommodate

students with disabilities. Consequently, they always find themselves not being able to perform to their full potential and ability in academic activities, particularly, acquisition of pedagogical content knowledge. From the findings of this study, it concluded that the implication of students not having proper accommodation could be aggressive behaviour, since a human behaviour is fundamentally related to the nature of environment a person lives in. Conversely, good housing leads to good health and higher rate of academic performance.

REFERENCES

- Adelaide,S. K., Anyobodeh, R. & Abban, G. (2016). An Assessment of the Accommodation Challenges Faced By Students Takoradi of Polytechnic. International Journal of Novel Research Marketing Managementand **Economics** 3(1),64-72. pp
- Adeleye, O. 2014. An Assessment of Housing Satisfaction among Pre-Degree Students of Obafemi Awolowo University, Ile-Ife, Nigeria. *Civil and Environmental Research*, 6(8), 169 178.
- Chickering, A. W., & Reisser, L. (1993). Education and identity. San Francisco: Jossey-Bass Publishers.
- Chiguvi, D. & Ndoma, J.T. (2018), The Effects of Accommodation on Students' Performance in Private Tertiary Institutions Botswana. BA ISAGO University, Gaborone, Botswana.
- Clark, N. (1997). Millenium Bug: Government accused of not doing enough. Financial Times. (20.3.97).
- Cochran, DeRuiter, & King 1993. Fernandez-Balboa & Stiehl, 1995; Grossman, 1990; Magnusson, Krajcik, & Borko 1999; Marks, 1990; Shulman, 1986, 1987) Pedagogical content knowledge as reflected in teacher-student interactions: Analysis of two video cases, December 2012. *Journal of Research in Science Teaching* 49(10):1211–1239.
- Cohen, L., Manion, L., & Morrison, K. (2013). Research methods in Education. New York. Routledge Publishing.
- Creswell, J. W. (2009). Research design: Qualitative, quantitative, and mixed methods approaches (3rd ed.). Los Angeles: Sage.
- Department of Higher Education and Training (2011). National Skills Development Strategy III. Pretoria: Government Printers.
- Fernández-Balboa, J. M., & Stiehl, J. (1995). The generic nature of pedagogical content knowledge among college professors. *Teaching and teacher education*, 11(3), 293-306..
- Fung Dai Kin M, Isabel P, M. Ângela G, Erik M.2007. Determination of Rare Earth Elements in Geological Reference Materials: A Comparative Study by INAA and ICP-MS https://doi.org/10.1111/j.1751-908X.1999.tb00558.
- Gess-Newsome, J., Lederman, N. G., & Association for the Education of Teachers in Science . (1999). Examining pedagogical content knowledge: The construct and its implications for science education. Dordrecht, Netherlands: Kluwer.
- Goldhaber, D. D., & Brewer, D. J. (1997). Why don't schools and teachers seem to matter? Assessing the impact of unobservables on educational productivity. *Journal of Human Resources*, 505-523..

Journal of Social Sciences and Humanities

Special Issue: Vol. 18. No.4 (2021). 174-187. ISSN: 1823-884x Theme: New Media, Culture anda Social Learning

- Grossman, P. L. (1990). The making of a teacher: Teacher knowledge and teacher education. New York, NY: Teachers College Press.
- Haroun G. Haroun, Zubairu Suleiman Abubakar 2017. Deregulated Education system and Access: A challenge for Educational Technology practitioners in Nigeria. Gombe Journal of Education. Volume1; Issue1, 149-156.
- Johnson, R.B. and Christensen, L.B. (2008). Educational Research: Quantitative, Qualitative, and Mixed Approaches. 3rd Edition, Sage Publications, Inc., Lose Angeles.
- Lowe, H and Cook, A. Cook. 2003. Mind the Gap: Are students prepared for higher education? *Journal of Further and Higher Education 27(1):53-76.*
- Maree, J. G. (2012). Advancing Career Counselling Research And Practice Using A Novel Quantitative+Qualitative Approach To Elicit Clients' Advice. Pretoria: SAGA.
- Mcmillan, J.H. & Schumacher, S. (2010). Education research. New York, NY: Longman.
- Monk, D. H. (1994). Subject area preparation of secondary mathematics and science teachers and student achievement. Economics of education review, 13(2), 125-145.
- Punch, K. (2009). Introduction to social research. London: SAGE Publication.
- Tinto, V. (1993;2012). Leaving college: rethinking the causes and cures of student attrition. 2nd ed. Chicago; London: University of Chicago.
- Rhodes, C. (2002). Coaching, Mentoring and Peer-networking: challenges for the management of teacher professional development in schools. *Journal of In-service Education* 28, 297-309.
- Pascarella, E. T., & Terenzini, P. T. (2005). How college affects students. Vol. 2: A third decade of research. San Francisco, CA: Jossey-Bass.
- Thomas, J.L. 2012. Debating Issues in American Education. America: SAGE.
- Ross, John A.; Cousins, J. Bradley; Gadalla, Tahany; Hannay, LynneTITLEThe Effects of Course Assignment on Teacher Efficacy in Restructuring Secondary Schools.PUB DATE1999-04-00NOTE23p.; Paper presented at the Annual Meeting of the American Educational Research Association (Montreal, Quebec, Canada, April 19-23, 1999).
- Smith, B., Alexander, M. 2010. Wanted: 3000 string teachers: The status of string and orchestra programs in United States schools. National String Project Consortium. Retrieved from https://www.astastrings.org/app_themes/public/uploads/pdf/whitepaper.pdf
- Wilson, S. M., Shulman, L. S., & Richert. A. E. (1987). '150 different ways' of knowing: representations of knowledge in teaching. In Calderhead, J. (Ed.), Exploring teachers' thinking (pp. 104-124). London: Cassell educational.

ABOUT THE AUTHORS

HLENGIWE ROMUALDA MHLONGO

Faculty of Education, University of Zululand South Africa mhlongoh@unizulu.ac.za

NOLOYISO NONGALO

Faculty of Education, Walter Sisulu University

South Africa nnongalo@wsu.ac.za

MANTHEKELENG AGNES LINAKE

School of Further and Continuing Education, Faculty of Education, University of Fort Hare, Alice, South Africa mlinake@ufs.ac.za