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NEWLY QUALIFIED TEACHERS AND THEIR PREPARED- NESS AS GEOGRAPHY TEACHERS IN ZAMBIA


**DOCENTES RECIÉN TITULADOS Y SU PREPARACIÓN COMO PROFESORES DE GEOGRAFÍA
EN ZAMBIA**

**ENSEIGNANTS NOUVELLEMENT QUALIFIÉS ET LEUR PRÉPARATION EN TANT QUE
PROFESSEURS DE GÉOGRAPHIE EN ZAMBIE**

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ABSTRACT:

The study aimed to explore the geography teachers' engagement with the geography content during their undergraduate teacher preparation at the University of Zambia and upon employment in secondary schools. The researcher utilised a case study design to collect data from nine geography teachers trained at the University of Zambia and later employed to teach in the Secondary schools of Zambia. A semi-structured interview

guide was employed to collect data from nine geography teachers. Furthermore, the data collected was transcribed, coded and analysed thematically. The study established that most of the geography teachers enjoyed learning either physical geography or human geography. Furthermore, most geography teachers evaluated their teaching to have been slightly better in human than physical geography. Most participants felt adequately prepared to take up geography teaching in schools because they acquired more knowledge than required for secondary teaching. However, a few students who took the subject as their minor needed more human geography content courses.

KEYWORDS:

Teacher preparation; Geography content; engagement; undergraduate preparation; pedagogical content knowledge.

RESUMEN:

El estudio tuvo como objetivo explorar el compromiso de los profesores de Geografía con el contenido de Geografía durante su preparación docente de pregrado en la Universidad de Zambia y al trabajar en escuelas Secundarias. El investigador utilizó un diseño de estudio de caso para recopilar datos de nueve profesores de Geografía formados en la Universidad de Zambia y posteriormente empleados para enseñar en las escuelas Secundarias de Zambia. Se empleó una guía de entrevista semiestructurada para recopilar datos de nueve profesores de Geografía. Además, los datos recopilados fueron transcritos, codificados y analizados temáticamente. El estudio estableció que la mayoría de los profesores de Geografía disfrutaban aprendiendo Geografía física o Geografía humana. Además, la mayoría de los profesores de Geografía evaluaron su enseñanza como ligeramente mejor en Geografía humana que física. La mayoría de los participantes se sintieron adecuadamente preparados para iniciar la enseñanza de Geografía en las escuelas porque adquirieron más conocimientos que los necesarios para la enseñanza Secundaria. Sin embargo, algunos estudiantes que tomaron la materia como especialidad necesitaban más cursos de contenido de Geografía humana.

PALABRAS CLAVE:

Formación docente; contenido de geografía; compromiso; preparación de pregrado; conocimiento del contenido pedagógico.

RÉSUMÉ:

L'étude a pour objectif d'explorer le compromis des professeurs de géographie avec le contenu de la géographie au cours de leur préparation de doctorat à l'Université de Zambie et au travail dans les écoles secondaires. L'enquêteur a utilisé un projet d'étude

de cas pour compiler les données de nouveaux professeurs de géographie formés à l'Université de Zambie et postérieurement employés pour enseigner dans les écoles secondaires de Zambie. Il a utilisé un guide d'entretien semi-structuré pour compiler les données des nouveaux professeurs de géographie. De plus, les données recopiées seront transcrites, codifiées et analysées thématiquement. L'étude a établi que la majorité des professeurs de géographie permettait d'apprendre la géographie physique ou la géographie humaine. De plus, la majorité des professeurs de géographie évaluent leur enseignement comme étant légèrement meilleur en géographie humaine que physique. La plupart des participants sont adéquatement préparés pour démarrer l'enseignement de la géographie dans les écoles afin d'acquérir plus de connaissances sur les éléments nécessaires à l'enseignement secondaire. Sans embargo, certains étudiants qui veulent acquérir la matière comme spécialité nécessaire à d'autres cours de géographie humaine.

MOTS-CLÉS:

Préparation des enseignants; contenu géographique; engagement; préparation au premier cycle; connaissance du contenu pédagogique.

1. INTRODUCTION

Teachers with high levels of competency in the knowledge to be taught, skills in methodology and an understanding of educational foundations are expected to be products of teacher education programmes (Curriculum Development Centre in Zambia, 2013). In preparing future secondary school teachers, the University of Zambia requires student teachers to select subject content as their academic majors and minors and some education coursework as part of their theoretical teacher preparation (Banja & Mulenga, 2019). Banja and Mulenga (2019) further explain that student teachers go for their internship in their third or fourth year as part of their practical preparation at the University. Students enrolled in teacher preparation programmes can choose two teaching subjects in line with the secondary school curriculum (CDC, 2013).

Geography is amongst the subjects offered in teacher preparation at the University of Zambia, and like other subjects offered, it can be studied as a subject major or as a minor. With its broad knowledge base, the subject has the potential to help learners acquire positive attitudes towards the environment (Eze, 2021). A learner's acquisition of sound geographical knowledge depends on the quality of geography teaching at all levels of education.

The University of Zambia's geography teacher preparation programme requires students who select geography as their academic major to take more courses than those who study it as their minor. Whether one studied the subject as their major or

minor, geography teachers are expected to teach and execute responsibilities with the same level of competency upon employment. Challenges experienced by teachers who graduate from institutions of higher learning have caused teacher preparation practices in institutions of higher learning to be increasingly questioned and criticised (Ingiaimo, 2012; Mulenga, 2015; Townsend & Bates, 2007).

This study sought to establish levels of geography teachers' engagement with geography content during their undergraduate teacher preparation and their teaching experience upon employment in consideration of the structure of geography teacher preparation that offers more courses to those majoring in the subject and less to those who minor in it. Darling-Hammond (2017) explains that one of the vital building blocks in developing teacher effectiveness is teacher preparation.

A search through the literature shows that more research needs to be carried out on geography teacher preparation in Zambia and Southern Africa, and it is challenging to establish how geography education is fairing in the country and region. Kerr et al. (2013) called on geographers to be interested in secondary school geography research. Manik (2018) encouraged geography educators in Southern Africa to engage in research after establishing that the literature on geography education in Africa, especially Southern Africa, is limited. Macbeth (2012) explains how education and teacher education issues are multifaceted despite globalisation. This study, therefore, responds to calls by geography educators to improve the quality and quantity of geography education through research. With the world facing several environmental issues in the 21st century, society will benefit from the many solutions that the study of geography offers through effective teaching at both the university and secondary levels.

2. LITERATURE REVIEW

People's or learners' understanding of geography can help the world to find solutions to current environmental issues like climate change that are being experienced in the world. However, institutions of higher learning face different challenges in helping student teachers acquire sound geographical knowledge during undergraduate teacher preparation. Universities are responsible for producing geography teachers who have acquired pedagogical content knowledge (PCK). Content knowledge or subject matter knowledge is an important element of PCK. Content knowledge refers to a teacher's comprehension of specific subject matter (Shulman, 1986). Content knowledge in the context of this study refers to the geography teachers understanding of physical and human geography components in the high school curriculum.

Geography Education scholars have researched to improve different aspects of geography education at both secondary and tertiary levels. Studies in Germany and

Ghana revealed that students find human geography easier to understand, while physical geography is abstract and more challenging to understand compared to human geography (Fischer, 2022; Opoku et al., 2021). On the contrary, Selmes et al. (2022) indicated that slightly more undergraduates enrolled in physical/environmental courses than those who opted for human geography in a study conducted in Scotland. Some examples of physical geography components that students found challenging included Geomorphology and Climatology (Fischer, 2022) and the development of coastal landforms and deserts (Opoku et al., 2021). Larangeira and van der Merwe (2016) and Eze (2021) also revealed that geography students had difficulties with spatial literacy and in executing map work. Despite different aspects of physical geography being perceived as more difficult than human geography, it is clear that some students still prefer physical geography courses to human geography courses (Selmes et al., 2022). Students enrolled in geography courses that do not target teaching as a future employment prospect can easily choose between the two geography components in universities with programme structures that allow such options. However, secondary school students preparing to be geography teachers must have a good grasp of content knowledge in both aspects of Geography to teach it effectively (Ministry of Education, 1996).

According to the policy document educating our future,

The quality and effectiveness of an education system depend heavily on the quality of its teachers. They are the key to determining success in meeting the system's goals. In schools, learners' educational and personal well-being hinges on teachers' competence, commitment and resourcefulness (Ministry of Education, 1996, p. 107).

Several factors influence students' engagement with physical and human geography during undergraduate preparation. Some students enroll in geography courses at the tertiary level with no background in senior secondary school geography (Larangeira & van der Merwe, 2016), making it more difficult to comprehend abstract concepts. A study by Bowlick and Kolden (2013) revealed that learners with prior knowledge of geography coursework self-perceived greater geographic skills through the course than those without previous engagement with the course. Stewart (2022) argues that learners with no background in the subject may need to figure out the relevance of physical geography quickly. The literature points to positive and effective geography teaching and learning at the tertiary level when students have experience with senior secondary geography before enrolment at the tertiary level (Bonnet, 2003; Dolan et al., 2014; Larangeira & van der Merwe, 2016). Possession of knowledge and skills at the school level is useful in aiding comprehension of higher-level concepts (Bonnet, 2003).

Whether a student studied geography during their senior secondary, the transition from senior secondary geography to university geography has still been highlighted as a challenge impacting secondary and university teaching (Brysch, 2014; Ferreira, 2018;

Tredinnick, 2019). A mismatch or poor link between secondary school geography and university geography has been established (Brysch, 2014; Stewart, 2022; Tredinnick, 2019). A study by Ferreira (2018) divulged that geography students found university geography courses became broader with many topics, many of which they had never encountered at school.

He et al. (2022) indicate that rapid advancements in academic knowledge at the university level make it difficult for schools to keep up with the fast changes. Geography educators and geographers are focused and engaged in research, which produces new knowledge while also enjoying a flexible curriculum change, which is more challenging at the school level (He et al., 2022). In the same line of thought, Tredinnick (2019) highlights how geographers in academia are concentrated on addressing their issues, while geography teachers at secondary schools are wrestling with finding their own solid identity, among other issues. The detachment between university and school geography is perpetuated by minimal interactions between the two disciplines (He et al. (2022).

Geography student teachers' engagement and acquisition of geography content knowledge (CK) during their undergraduate teacher preparation influences the quality of teaching in schools. According to He et al. (2022), teachers' professional knowledge and skills strongly influenced the quality of geography education at the secondary school level. Fischer (2022) explains that most graduate teachers need help transforming knowledge acquired into practice at the beginning of their teaching careers. Studies have shown that geography teachers need help simplifying abstract geographical content knowledge to the required subject matter standard (Fischer, 2022; He et al., 2022).

In assessing the teaching of two geography teachers, Brooks (2006) revealed that postgraduate certificate of education (PGCE) students should have considered the subject knowledge that underpinned the lesson objectives. On the contrary, He et al. (2022) established that most teacher educators were pleased with the geography content represented in the classroom in China. In a diploma programme for geography teachers in Tanzania, Rwenjuna (2017) revealed that geography teachers needed more subject content knowledge to become better at teaching. Inadequate coverage of content knowledge caused by the limited amount of time allocated to teaching was highlighted as one of the challenges in geography education (Rwejuna, 2017). In the Netherlands, Blankman et al. (2015) point to limited time and little focus on the subject matter as essential factors impeding the quality of geography education. Harte and Reitano (2015) support the need for adequate acquisition of geography content by student teachers during teacher preparation; their study revealed that higher levels of confidence in content knowledge and geographical skills were seen in pre-service geography teachers who had completed a larger amount of courses during their undergraduate teacher preparation than the group who had taken less number of courses.

Although not exactly dealing with secondary school geography like the present study, it still deals with content knowledge. Dutch primary geography teacher educators considered their students' content knowledge insufficient (Blankman et al., 2015). Despite primary teachers being primarily trained as subject generalists rather than specialists in geography education (Blankman et al., 2015; Stewart, 2022), some concerns can still be related to secondary school geography. For example, the need for geography teachers with adequate content knowledge to teach effectively must be addressed at both primary and secondary levels. Teacher trainers know the difficulties of reaching complete expertise in all areas of a broad subject, like geography (Fischer, 2022).

Literature has highlighted some issues that have continued to affect secondary school geography teachers' delivery and acquisition of geography content knowledge. However, the differences in many studies lie in each particular study's focus, context and methodology. Fischer (2022) describes research in geography teacher education programmes as scarce. This study assessed the University of Zambia's undergraduate geography teacher preparation by exploring geography teachers' engagement with content knowledge during their teacher preparation and upon employment as secondary school geography teachers. A search through the literature shows that Geography education is under-researched in Zambia and more so in Southern Africa. Even though the field is under-researched in Africa (Manik, 2015), it interests many geography educators. Developing countries are keen on improving geography teaching at all levels by engaging in further research around PCK in Geography teaching and learning.

3. METHOD

This study utilised a case study design under a qualitative approach in establishing geography teachers' engagement with geography content during their teacher preparation and their teaching experience in secondary schools. Purposive and snowball sampling was employed to select geography teachers who had studied their undergraduate at the University of Zambia and were teaching in secondary schools in Zambia at the time of the study. A search for participants showed that more students study geography as their major than a subject minor. Geography teachers who studied geography as their major were quickly accessible, while finding those who studied the subject as their minor was scarce. A semi-structured interview guide was administered to nine geography teachers who opted to participate in this study. Qualitative studies allow researchers to collect rigorous and wealthy data from a few participants (Cresswell, 2014; Yin, 2011). Carson et al. (2001) explain that there are no rigid instructions on sample size, especially in a case study, compared to quantitative studies, which have more rigid instructions on sample size. The semi-structured interview guide aimed at collecting data on several

aspects, including the types of courses geography teachers acquired, the geography components the geography teachers enjoyed, challenges faced, assessment of the teacher preparation programme and geography teachers' assessment of their teaching in secondary schools. Data analysis involved transcribing the recorded data, coding, categorising and developing themes (Braun & Clarke, 2006). The study followed all the ethical requirements of qualitative research to ensure that the study was credible and trustworthy. An application for ethical clearance was lodged months before data collection. The researcher was granted permission by the Research Ethics Committee in the Faculty of Education at the University of Pretoria upon meeting all requirements.

4. RESULTS

In establishing geography teachers' engagement with geography knowledge during their undergraduate preparation, findings revealed that all the geography teachers read both physical and human geography courses regardless of whether one took geography as a subject major or as their minor. The participants reported having had positive and negative experiences while engaging with geography content in their undergraduate studies.

Slightly more participants enjoyed physical geography more than those who enjoyed human geography, with those who took the subject as their minor being slightly more than those who took the subject as their major. Geography teachers who were more optimistic about physical geography found it practical and interesting. One of the respondents had this to say;

“I enjoyed physics the most; most of the courses I took as my electives were physical geography inclined. It was more practical, considering that few people took courses. There were high chances of probing the lecturer more to get information” (PMJ5).

On the contrary, more geography teachers who read the subject as their major confirmed to have enjoyed learning human geography compared to physical geography. Even when selecting elective courses as a requirement for those who read the subject as their major, most selected human geography courses; further scrutiny of the data revealed that more than half of the geography teachers who took geography as their major needed a foundation in senior secondary school geography. Human geography was considered easier and more interesting than physical geography. The following was one of the responses given:

“I enjoyed learning about human geography because it had interesting topics. Physical geography was not my stronghold, so I picked most courses from human geography” (P1Mj).

“I just took human geography courses, unfortunately. I perceived that Physical Geography was difficult” (P1Mj).

In this study, only a minority of the teachers enjoyed learning physical and human geography components. Participants who found physical geography more enjoyable did not indicate challenges with human geography, while the opposite was true with those who enjoyed human geography.

Furthermore, to obtain more information on geography teachers' engagement with geography during their teaching experience in secondary school, they were asked to grade themselves out of 100 in teaching physical and human geography content in secondary school. The study's findings revealed that most participants graded themselves higher in either physical or human geography.

The highest mark graded in physical geography was 100 per cent, while the lowest was 70 per cent. On the other hand, the highest mark scored in human geography was 100 per cent, and the lowest was 70 per cent. Slightly more participants scored their confidence levels higher in teaching human geography than physical geography. The findings further revealed that only one participant who studied geography had the same confidence level in teaching physical and human geography. The table below shows geography teachers' self-assessment of their teaching.

Geography teacher	Background in Senior Secondary Geography	Physical geography	Human geography
PMJ1	Yes	80	100
PMJ2	No	90	70
PMJ3	No	70	80
PMJ4	No	75	90
PMJ5	Yes	95	75
PMN6	Yes	90	90
PMN7	Yes	70	90
PMN8	Yes	100	90
PMN9	Yes	85	95

TABLE 1. Geography teachers' self-evaluation results. Source: Author's Field data, 2023.

The findings showed that the participants had more confidence in teaching human geography because it was easier to understand than physical geography. More geography teachers enjoyed learning human geography during their teacher preparation of the same components. They scored higher confidence in teaching human geography themes at school.

Most geography teachers felt adequately prepared to teach geography in secondary schools. Some geography teachers who took the subject as their minor felt their coverage of human geography needed to be more but still felt adequately prepared for teaching. More Geography teachers reported having acquired more than enough geography content during their undergraduate teacher preparation. However, some geography teachers felt inadequately prepared because the geography content acquired during their undergraduate training differed from the secondary school geography syllabus. Participants who had taken the subject as their major and had no background in senior secondary geography reported to have felt inadequately prepared.

Sub-theme	Participant	Response
Adequately prepared for geography teaching in secondary school.	P5Mj	<i>It provides a holistic approach to Teacher Training because of the information I acquired. There is a huge gap in that I acquired more information than what I am using.</i>
	P6Mn	<i>I acquired more content than required, so the content from UNZA is adequate for geography teaching.</i>
	P7Mn	<i>We were over-equipped; at one point, I wondered if the things we were learning at UNZA were too much for the type of job we are doing now.</i>
	P2Mj:	<i>The content is almost the same, and It does not change; it is only that at UNZA, sometimes we go into details. In physical geography, we use almost everything we learnt at UNZA, and it has been easy for me to teach Geography.</i>
	PMj1	<i>I was adequately prepared for teaching and other programmes, such as climate change consultancy.</i>
Inadequately prepared for geography teaching in secondary schools	P3Mj	<i>What we were being taught on that side differs from what we meet when we come to the school setup. They gave more information that we will not use when we start teaching.</i>
	P4Mj	<i>The biggest difference is that we learned at UNZA that it was very advanced. You cannot teach it to a learner in class, and it does not apply to the syllabus either.</i>

TABLE 2. Summary of geography teachers' responses on the effectiveness of the teacher preparation programme. Source: Author's Field data, 2023.

It should be noted that the two participants who felt inadequately prepared also had no background in senior secondary geography before coming to the University to study towards becoming geography teachers. When further questioned on examples of courses she felt were irrelevant to the secondary school syllabus, P3Mj said: *Courses like Climatology or Hydrology, I need help finding the connection*. Lack of foundation or background in senior secondary geography may explain why the two felt that the subject was too advanced at the University level and not in line with the senior secondary syllabus. All participants (including those who felt inadequately prepared) considered acquiring more broad-based geography content an advantage for secondary school geography teaching.

5. DISCUSSION

The findings have indicated that participants consider physical geography more challenging to understand (and therefore teach) than human geography. Findings are similar to other studies that indicate that students find human geography easier to comprehend than physical geography (Fischer, 2022; Opoku et al., 2021). Although students found the human geography component easier than physical geography, secondary schools expect graduate teachers to be comfortable and competent in teaching both components of the geography curriculum. Physical geography teaching should be done with extra care to make it easy for learners to understand abstract concepts.

The findings also revealed that human geography was inadequately covered according to a few geography teachers who read the subject as their minor, contrary to responses from those who studied it as their major. Although only a few reported this finding, it aligned with Rwenjuna's (2017) study in Tanzania, which revealed that geography teachers needed more subject content knowledge to become better teachers. Furthermore, as suggested by most participants, the amount of geography content acquired during teacher preparation influences geography teaching. The findings confirm Harte & Reitano's (2015) study that revealed pre-service geography teachers who had taken a larger number of courses during their undergraduate teacher training had an advantage in confidence levels over those who took fewer courses. What was clear from the findings is that geography teachers felt those who took more geography courses would have a slightly better advantage in their teaching. Regardless of the other factors that influence the quality of teaching, content coverage during teacher preparation plays a part, which may be minimal or more depending on other circumstances.

Furthermore, it was established that geography teachers with no senior secondary school background found geography content acquired to be too advanced and different from secondary school geography, contrary to the others who found it advanced but still

in line with secondary content. This study agrees with other studies that echo the need for geography students to have sound senior secondary geography before their undergraduate training (Dolan et al., 2014; Larangeira & van der Merwe, 2016). Acquiring geography content before prior knowledge of senior secondary content leaves a more significant gap for geography teachers to relate what they learned with what they need to deliver. Pre-service geography teachers' engagement with the subject during their undergraduate studies becomes challenging.

The study established that slightly more participants scored their confidence levels higher in teaching human geography than physical geography. Teaching human geography was seen to have been easier than explaining abstract concepts found in physical geography, like map work and river processes. Similarly, Fischer (2022) revealed that teachers had challenges in physiogeography (similar to physical geography) but seemed better prepared in human geography. Literature confirms that geography teachers struggle with teaching geographical content knowledge to the required subject matter standard (Brook, 2006; Fischer, 2022; He et al., 2022). Students who had challenges with physical geography preferred choosing human geography electives despite being expected to teach all components with the same level of competency upon employment.

On the contrary, student teachers can improve their understanding of physical geography courses if they spend more time acquiring it than human geography, which they already find easy. One will understand a component they interact with more often than one they decide to stay away from in trying to avoid challenges. Martin and Dismuke (2018) established that there were differences in understanding and practices of elementary teachers who had taken a writing methods course (course teachers) and those who did not (non-course teachers). A strong connection between course understanding and practices was seen in course teachers' while non-course teachers were described as good teachers attempting to teach what they did not know (Martin & Dismuke, 2018).

Contrary to literature that points to geography teachers needing to be more adequately prepared for geography teaching in schools (Rwenjuna, 2017; Blankman et al., 2015), this study revealed that most of the teachers felt adequately prepared by the geography teacher preparation programme to take up teaching, on the other hand; the study agrees with a study done in China that points to being satisfied with the geographical content represented in the classroom (He et al., 2022).

Studies at the University of Zambia in subjects like English and History revealed a gap between university education and secondary education content, negatively affecting the quality of teaching in schools (Chabatama, 2012; Mulenga, 2015). However, the findings of this study indicate the contrary: despite agreeing with a gap between geography syllabus and university geography content, geography teachers still felt

adequately prepared for geography teaching. Geography teachers felt they had acquired more geography content, which was highlighted as an advantage.

6. CONCLUSION

This article has described the University of Zambia's geography teachers' engagement with geography content during their undergraduate geography teacher preparation and in secondary schools upon employment. Exploring geography teachers' engagement with geography content during teacher preparation helped to assess the effectiveness of teacher preparation taking place in institutions of higher learning. The study revealed that geography teachers' experiences with geography content varied, with some geography teachers who took the subject as their minor indicating to have acquired more physical geography content than human geography courses. The study shows that geography teachers found human geography components to have been easier to understand and teach than physical geography. Acquisition of more geography content courses (subject major) was considered an advantage compared to those who acquired fewer content courses (subject minor) in this study. Contrary to other studies (Rwenjuna, 2017; Blankman et al., 2015), this study showed that most geography teachers felt sufficiently prepared to teach geography in secondary schools.

The study recommends that the University of Zambia's geography teacher preparation programme have a well-balanced physical and human geography course structure for all the student teachers. Enrolling students with interest and a background in senior secondary geography should be necessary to improve the teaching and learning of the subject at the university and secondary level. Furthermore, geography teacher education programmes need to concentrate on finding ways of helping student teachers gain interest and better understand physical geography. This study has contributed knowledge in curriculum development in institutions of higher learning in geography education. The study findings have practical implications for curriculum planners and the community of geography educators. One of the limitations identified in the study is that this case study explored geography teachers' engagement with geography content during their undergraduate teacher preparation at the University of Zambia and employment, and therefore, cannot be generalised to other geography teachers or Universities. Further research in this realm is therefore necessary.

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