

## THE ROLE OF THE GEOGRAPHY PRESERVICE TEACHERS' SERVICE-LEARNING IN THE DEVELOPMENT OF MAP LITERACY

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### Abstract

This article draws insights from the experiences of Geography preservice teachers gained from the mandatory mapwork service-learning for Geography learners in grades 10, 11, and 12. Map work is considered an essential element of Geography, yet acquiring map skills remains problematic for many South African Geography learners. There is a consistency in the outcry of the learner's lack of map literacy, regardless of the robust strategies emphasized for the effective teaching of map skills and the emergence of technologies. Considering that the issue of map literacy has been persistent in South Africa, it is imperative to explore every possible alternative that would contribute towards equipping learners with map skills and other competencies required for mapwork. Therefore, the article explores the challenges, strategies, and resources used by Geography preservice teachers to tutor map work in grades 10,11 and 12 during service-learning. Accordingly, the article argues that mandatory mapwork service-learning could contribute to reducing some of the challenges around mapwork. Empirical data was collected through an in-depth analysis of twenty teachers' structured reflections that were administered at the end of the preservice teachers' service-learning. The analysis of these reflections followed a content and qualitative analysis approach. The findings indicate that the preservice students had a positive and developmental experience during the service-learning. Different teaching strategies and resources were repurposed for tutoring. Although met with some learners' challenges, the processes employed in implementing the strategies helped develop learners with basic map skills, which the data indicated was a major challenge before the mandatory mapwork service-learning.

**Keywords:** *Geography preservice teachers, mapwork, tutoring, service-learning.*

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### 1. Introduction and background

Service-learning is a fundamental component in higher educational institutions for many reasons. Internationally, the emergence of service-learning has been understood as a modern way of teaching and learning (Salam, Awang Iskandar, Ibrahim, & Farooq, 2019). In other parts of the world, the importance of service-learning has also been evident in basic education levels (Chambers & Lavery, 2012). Locally, Petker and Peterson (2014) have reported that service-learning is relatively new in South Africa. It was introduced in the 1990s in higher education as a result of the higher education policies designed by the Department of Education (Le Grange, 2007). In recent years, the scholarship on service-learning for preservice teachers has become prevalent. According to Resch and Schritteser (2023), service-learning is a teaching approach that allows students to gain a nuanced understanding of the content covered in class and gain civic engagement skills through connecting theory to practice in communities. Similarly, Heider, Valenti, Long, Garbou, Rex, and Harper (2018) posit that service-learning is grounded on the connection between the student's academic learning, civic engagement, and personal growth. In this way, service-learning is not perceived as a mere civic engagement opportunity. However, it contributes to the student's learning by providing a platform in which the students can transfer their knowledge and skills and also enhance the student's growth. Service-learning programs are promoted in higher education institutions to enhance learning and equip students with a sense of civic engagement (Pérez-Ordás, Nuviala, Grao-Cruces, & Fernández-Martínez, 2021). In this way, Petker and Peterson (2014) argue that service-learning instills the understanding that the ethic of care in education is not foregrounded within the school curriculum or classrooms but transcends community structures.

While there are a plethora of studies endorsing different ways in which effective service-learning could be undertaken (See Cone & Harris, 1996; Kiely, 2005; Petker & Peterson, 2014; Swords & Kiely, 2010; Fourie, 2003; Pérez-Ordás, Nuviala, Grao-Cruces, & Fernández-Martínez, 2021), Mogk and King (1995) maintain a good service-learning initiative must have a clear articulation of needs of the community, training of students, meaningful action, and reflection upon the action. Similarly, Dorsey (2001) argues that when service-learning programs for Geography are carefully designed, they have the potential to generate valuable first-hand experience and contribute to therapy and research. The application of service-learning in teaching and learning Geography in different educational stages of training is of utmost importance (Oqaiby, Mohammed, & Hafez, 2022). Accordingly, in Geography, service-learning is used in different innovative ways to help students transfer Geographical content knowledge and skills to communities. In a study exploring the impact of service-learning for Geography students from a critical view, Cahuas and Levkoe (2017) report that service-learning creates opportunities for social change in the classroom and community, which makes it a promising pedagogical strategy for Geographers aiming to create alternate teaching approaches in their classrooms. On the other hand, Mahon, Conway, Farrell, and McDonagh (2020) investigate the contribution of service-learning to Geography students' professional identity. In other cases, service-learning has been used to expose students to fieldwork, an inextricable Geography component (Grabbatin & Fickey, 2012).

Despite the prevalent scholarship on the role of service-learning in Geography education, there is a dearth of studies on the role of service-learning in map literacy in South Africa. Map literacy is considered an essential element of Geography, yet acquiring map skills remains problematic in many South African Geography classrooms. There is a consistency in the outcry of the learner's lack of geospatial competence, regardless of the robust strategies emphasized for the effective teaching of map skills and the emergence of technologies. It is imperative to explore every possible alternative that would contribute towards equipping learners with geospatial competence and other competencies and skills acquired from mapwork.

Against the backdrop of the above, the article draws insights from the experiences of Geography preservice teachers gained from the mandatory mapwork service-learning, which focused on grades 10, 11, and 12. The article argues that mandatory service-learning designed specifically for mapwork could greatly minimize the challenges around mapwork. The service-learning program is a mandatory component for the 3<sup>rd</sup> year preservice teachers. Preservice teachers are expected to engage in any form of community service-learning for a duration of 45 hours. In the Geography methodology and practicum module, the service-learning was modified and tailored specifically for mapwork, following the high failure rate in mapwork in South Africa. The aim of the mapwork mandatory service-learning is to ensure the contributions of Geography preservice teachers in their communities through their mapwork expertise.

## **2. Research methodology**

The study employs a qualitative research methodology, defined by Merriam and Tisdell (2016) as a methodology that seeks to reveal the meanings from the experiences of people involved in it. In this way, the qualitative research helped the Geography preservice teachers articulate their service-learning experiences within their context.

## **3. Data collection and analysis**

Data was collected through the preservice teacher's reflections. A purposive sampling technique was used to select sixteen reflections on the mandatory map work service-learning submitted by the Geography preservice teachers who are in their third year of study. The reflections were analyzed through qualitative analysis, which allows a deep analysis of the text (Castleberry, Payakachat, Ashby, Nolen, Carle, Neill, & Franks, 2016). Atlas, ti 24 was used to code and categorize the themes that emerged from the reflections and to also generate the word cloud with the codes and themes.

## **4. Findings and discussion**

The findings show that the mapwork service-learning provided the Geography preservice teachers with insightful experience. The three themes; are learners' challenges with map work, mapwork strategies and resources, and lessons learned by the Geography preservice teachers.

### **4.1. Learner's challenges with mapwork**

The data indicates that the learners who were tutored by the Geography preservice teachers had a number of challenges with mapwork. Although the challenges differ between grades 10, 11, and 12, it is interesting to note that the data shows that most learners lacked the basic mapwork skills such as reading a map, identifying map symbols and features, recalling formulas for calculating an area for a dam or a



Although the data shows that the strategies were always used with the conventional mapwork resources such as maps, hands-on apparatuses, pictures, and so on, the preservice teachers alluded to the importance of integrating technological applications in mapwork. Accordingly, some preservice teachers commended the effectiveness of the Google Earth application in helping learners calculate the distance from one feature to another and the area of a dam on a map. This is an important discovery from the data because the preservice teachers were introduced to the Google Earth application for the Geography teaching module the same year, they were sent to the mandatory mapwork service-learning. Therefore, the use of Google Earth in real-life Geography classrooms shows that the preservice teachers have an improved understanding of the content, and it is the application, as Mutambara (2023) argues, is one of the benefits of service-learning. Nevertheless, despite many of the strategies and resources being presented as being effective for mapwork, the data shows that the essence lies within the manner in which these strategies and resources are used.

### 4.3. Lessons from tutoring mapwork during the service-learning

Data shows that the preservice teachers had a positive experience with the mandatory mapwork service-learning. Essentially, these teachers felt that the service-learning greatly impacted their communication skills, teaching approach, and abilities, perceptions about the use of technology in mapwork, adaptation of strategies and resources, and how the learners acquire mapwork skills. These insights point to the personal and professional growth development explained by Mutambara (2023). The data also indicated that the preservice teachers considered service-learning as a platform from which they could learn from their practice, learn from the answers given by the learners, and the practicality of what they have been taught in the Geography teaching and practicum methodology module. This validates Mutambara's (2023) claims that service-learning is a good platform from which the preservice teacher's professional growth could be enriched through exposure to real-life environments.

However, the exposure provided through the mandatory mapwork service-learning differs from the programs such as work-integrated learning in the sense that the former is specifically designed for mapwork literacy following the learner's poor performance on it. At the same time, the latter exposes the preservice teachers to a broader range of dynamics in the teaching profession and in the teaching of Geography. In this way, the work-integrated learning may or may not expose the preservice teachers to mapwork as these teachers engage in work-integrated learning in a particular season using an annual teaching plan, which determines what should be taught on a weekly basis.

## 5. Conclusion and recommendations

Service-learning is important for the preservice teachers. However, designing service-learning that is intended for the development of the Geography preservice teachers and the community at once makes service-learning intentional. As such, the study has indicated that mandatory mapwork service-learning contributes to enhancing the learners' mapwork skills, and in return, the preservice teachers develop professionally. Moreover, practical assessments, contextualization of examples, and Google Earth play an invaluable role in equipping learners with mapwork skills. Therefore, mandatory mapwork service-learning for Geography preservice teachers may be the approach that is needed by South Africa and other countries whose learners are struggling with mapwork. Although strategies and resources may be extrapolated to other countries, contextual factors, the preservice teacher's teaching approach, the different types of learners, the availability of resources, and other factors might have to be considered.

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