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A Balancing Act: South African Geography teachers' Implementation of Teacher-Centered and Learner-Centered Instructional Strategies in Their Classrooms

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ABSTRACT

Learner-centered instruction fosters 21st-century skills and must be implemented in geography classrooms. In this South African case study, most teachers predominantly implemented teacher-centered instruction. The analysis of the results established a moderate but highly significant relationship between geography teachers' years of teaching and their implementation of teacher-centered instruction and a weak significant relation in the implementation of individual instructional strategies. Teachers with more years of teaching implemented more teacher-centered and individual learner-centered instructional strategies than early-career teachers. Teachers stated that learners and parents expected them to teach and that large classes hindered the implementation of learner-centered instruction.

KEYWORDS

Constructivism; geography education; learner-centered instruction; teacher-centered instruction

Introduction

Geography is an interdisciplinary subject that is practical in nature and requires the use of instructional strategies that give the learner hands-on experience (Kagoda 2016). Kricsfalussy, George, and Reed (2018) and Rieckmann (2017) highlight how learner-centered instruction can promote and develop 21st-century skills such as creativity, critical thinking, problem-solving, collaboration, and communication. It is no surprise that the South African geography *Curriculum and Assessment Policy Statement* (South Africa 2011) advocates that geography teachers must promote active and critical learning in their classrooms, and therefore, it is expected of geography teachers to implement learner-centered instructional strategies. In this regard, González-Marcos et al. (2021) and Baeten, Dochy, and Struyven (2012) point out that the efficiency of instructional strategies is increased by combining learner-centered instructional strategies and methods, such as case-based learning, enquiry-based, problem-based learning, cooperative learning, fieldwork, games and simulation, debates, and role-play, with teacher-centered instructional strategies, such as lectures, demonstrations, explanations, questions and answers, and the completion of assignments and worksheets. It is up to geography teachers to find a balance in the implementation of different teacher-centered and learner-centered instructional strategies in their classrooms. Research also demonstrates a complex relationship between a number of factors, including years of teaching (or teaching experience), which may influence the quality of teaching and the implementation of instructional strategies (Brandenburg et al. 2016).

In the literature on geography education, it is reported that African and South African geography schoolteachers predominantly implement teacher-centered instruction, as they experience different challenges in the implementation of learner-centered instructional strategies (e.g., Kavari 2012; Mtitu 2014; Mukamwambali 2012; Mungoo and Moorad 2015; Nel 2010; Ntahobavukira 2014). These challenges include large class sizes (Nel 2010), poorly resourced classes (Bongani 2019; Innes 2012), and a focus on the final examinations (Mungoo and Moorad 2015). Against this background, the purpose of this case study is to investigate geography teachers' implementation of teacher-centered and learner-centered instructional strategies in two districts of the North West Province in South Africa and the challenges they experience with the implementation of learner-centered instructional strategies. Further, the relationship between geography teachers' years of teaching and the implementation of these strategies, as well as the challenges they experience with the implementation of learner-centered instructional strategies will be determined.

State of research on instructional strategies in geography classrooms

Teacher-centered and learner-centered instructional strategies

In the teacher-centered instructional approach, the geography teacher has control over the learners' learning and mostly uses teacher-centered instructional strategies, such as lectures, demonstrations, basic questioning and answering,

and explanations, to convey information to the learners (Sawant and Rizvi 2015), coupled with the method of recitation and drill through the completion of worksheets and assignments (Awases 2015) for the acquisition of mostly lower-order thinking skills (Vogler 2008). Most geography teachers who use this approach struggle to promote and foster the motivation of learning, the development of higher-order cognitive skills, and the understanding and retention of the learners' geography knowledge (Hamid and Merza 2012). In recent small-scale studies in some parts of South Africa, Felix (2021) and Mukondeleli (2018) reported that in most geography classrooms, teacher-centered instructional approaches are still dominant.

In recent years, a call has been made to improve geography teaching and learning processes to provide learners with the appropriate skills relevant to the needs and demands of the twenty first century (Abdulmajid, Zamin, and Kamarudin 2017; Saavedra and Opfer 2012). According to Biddulph, Lambert, and Balderstone (2020), learning is an enquiring process characterized by learners' active engagement in the learning content. As in most other countries, it is expected of geography teachers to also implement learner-centered instructional strategies in their classrooms (South Africa 2011).

Learner-centered instruction originated from the constructivist learning theory, which is opposed to behavioristic, teacher-centered instruction (Baeten et al. 2012). In the cognitive and social-constructivist approaches, instructional strategies should encourage learners to actively explore geography topics that will challenge them to think and to construct their knowledge and understanding individually or through social negotiation with their fellow learners. In this regard, Frisk and Larson (2011) state that learners learn best when they construct knowledge for themselves through personal experiences. Furthermore, learners' achievement and attitude toward learning improve when they are engaged in learner-centered authentic learning experiences (Parkay, Anctil, and Hass 2014).

It is important that geography teachers provide a supportive and stimulating learning environment, sufficient learning time, and additional learning experiences to ensure that learners can progress at their own pace (Zohar and Agmon 2017). To successfully plan and implement learner-centered instructional strategies and select the most suitable instructional strategies for the comprehension and application of knowledge in geography classrooms, geography teachers must have the necessary content knowledge and pedagogical content knowledge (Zohar and Agmon 2017). A teacher acts as a facilitator and guides learners in discovering information, thinking critically, making arguments, forming judgments, and constructing their own learning by being actively involved in the learning process (Everaert, Opdecam, and Maussen 2017). During the learning process, the geography teacher must provide the necessary scaffolds to support the learners and give feedback to the learners, increase learner involvement, and improve their motivation to learn (McLaughlin et al. 2014).

Geography teachers have a great variety of instructional strategies available that they can use for teaching and

learning geography content and effectively promoting geography skills. Some of the most prominent geography instructional strategies that actively involve learners in the learning process are problem-solving questions, problem-based learning, enquiry-based learning, cooperative learning, role-play, fieldwork, group assignments, class discussions, simulation, and debates (Everaert et al. 2017; Foster and Stagl 2018; Gerber 2003; Golightly 2018; MINEDUC 2015). It is important for geography teachers to find a balance when implementing teacher-centered and learner-centered instructional strategies to accommodate learners with different learning styles and learning contexts in developing their knowledge, skills, and learning capabilities (Golightly 2018). Although most geography school curriculums around the world promote learner-centered instruction in the geography curriculum, it is necessary to assess and monitor if geography teachers in their countries implement learner-centered instruction regularly to foster geography learners' 21st-century skills.

Geography teachers' years of teaching and the implementation of instructional strategies

Previous findings are mainly in subjects other than geography. While they primarily show that more experienced teachers implement more learner-centered instructional strategies and practices (Lim and Chai 2008), some researchers have reported evidence to the contrary (Feyzioğlu 2012; Sandholtz 2011). In a more recent study, Caeon, Tan, and Cho (2018) reported that early-, mid-, and late-career Science teachers in Singapore implemented mostly teacher-centered instructional practices in their classrooms. However, elements of learner-centered instructional practices were more frequently observed in the classrooms of experienced teachers than in those of early-career teachers. Diković and Gergorić (2020) reported no relation between Croatia teachers' years of teaching and the use of teaching strategies for the topic 'nature and society'. In this regard, Thompson, Windschitl, and Braaten (2013) and Ingersoll and Strong (2011) also reported that early-career teachers preferred to implement more teacher-centered instructional strategies. Kyndt et al. (2016) and Richter et al. (2011) also found that more experienced teachers indicated that they were willing to experiment with new, learner-centered instructional strategies to improve their instructional repertoire. It is important to explore the relationship between geography teachers' years of teaching and the implementation of teacher-centered and learner-centered instruction in South African geography classrooms.

Challenges with the implementation of learner-centered instructional strategies

A few South African studies in school education have highlighted the challenges teachers experience with the implementation of learner-centered instruction. For example, these may include the demands of formal examinations (Mungoo and Moorad 2015), the difficulties of classroom management

due to overcrowded classrooms (Mfeka 2005; Nel 2010), the pressure to complete the geography curriculum on time (Mfeka 2005; Mukamwambali 2012; Ntahobavukira 2014), and poor resource provision that forces teachers to select teacher-centered instructional strategies (Bongani 2019; Innes 2012; Kavari 2012; Nel 2010). Furthermore, geography learners are not prepared to embrace learner-centered approaches but expect their teachers to use teacher-centered instructional strategies in their classrooms (Makunja 2016). Ncanywa (2014) also points out that for most learners in South African schools, English is their second language and they do not have the necessary language proficiency in reading, speaking, and writing, which hinders the implementation of learner-centered instruction in geography classrooms. South Africa has 11 official languages, but English and Afrikaans are the only languages with a developed academic literature and in which it is possible to write the secondary school leaving examinations (Taylor and Von Fintel 2016). Therefore, most parents send their children to English schools, although English is not their home language. This can have a negative influence on their academic performance in schools (Vorster, Mayet, and Taylor 2013).

Similar challenges are highlighted in other African countries as well. Otara et al. (2019) reported that Rwandan teachers experienced various challenges with the implementation of active learning strategies, such as insufficient and inadequate teacher training, a lack of clear quality indicators for learner-centered instruction, a shortage of school facilities and resources, large classes, the heavy workload of teachers, and the language of instruction. In Mtitu's (2014) study, it was found that geography teachers in Tanzania held the perception that their education policy and curriculum did not promote learner-centered instruction and that geography teachers lacked appropriate knowledge of constructivism, and, therefore, they implemented a surface application of learner-centered pedagogies. Mtitu (2014) states that the lack of instructional resources, such as textbooks, reference books, and computer-assisted facilities, adversely affects the implementation of learner-centered instruction in Tanzania. In a study in Ugandan schools, Akello and Timmerman (2018) found that some geography classrooms lacked basic learning materials such as textbooks.

Bature and Atweh (2020) also reported that learners in schools in Nigeria indicated that learner-centered instruction was challenging and unfamiliar and preferred teacher-centered instruction, while learners in Mungoo and Moorad's (2015) study viewed teacher-centered instructional approaches as more effective. With reference to an overloaded geography curriculum, Ockhuizen (2018) reports that the Namibian geography syllabus for the senior grades covers too many topics and there is too much focus on the final geography examinations. Interestingly, Mpaso (2018) as well as Mtika and Gates (2010) reported that geography teachers did not have the necessary skills to implement learner-centered instructional strategies in overcrowded and under-resourced geography classes and, therefore, reverted to teacher-centered instruction.

In the literature, no studies dealing with the relationship between teachers' years of experience and the challenges

with the implementation of learner-centered instruction could be found. However, Thompson et al. (2013) and Ingersoll and Strong (2011) reported that early-career teachers often avoided learner-centered instructional strategies when they experienced challenges such as heavy workloads, inadequate mentoring and induction, a lack of support from more experienced teachers, and a lack of learning materials and resources.

In summary, it can be stated that so far, no geography education study investigating the relationship between geography teachers' years of teaching and the implementation of teacher-centered and learner-centered instructional strategies, as well as the challenges with the implementation of learner-centered instruction, could be found. Against this background, the research questions of this study are as follows:

- Do geography teachers in two districts of the North West Province in South Africa implement teacher- and learner-centered instructional strategies?
- What challenges do geography teachers experience in implementing learner-centered instructional strategies?
- What is the relationship between geography teachers' years of teaching and the implementation of these strategies, as well as the challenges with the implementation of learner-centered instruction?

Empirical investigation

Research design

A non-experimental survey design (see Maree 2016) was chosen for this South African case study. It entailed administering a survey – the 'Instructional Strategies in Geography Education' (ISGE) questionnaire – developed by the researcher, to in-service geography teachers with varying years of teaching in Quintile 1 to 5 public schools in two districts of the North West Province in South Africa (Dr Kenneth Kaunda and Bojanala Platinum districts). South African schools are classified as Quintile 1 up to 5. The lower quintile schools (Quintiles 1, 2, and 3) indicate schools in very poor areas, whereas Quintiles 4 and 5 indicate schools in more affluent areas (Dass and Rinquest 2017). The empirical investigation followed a quantitative methodology that was embedded in the post-positivist paradigm (see Maree 2016).

Participants

The participants in this case study are South African geography teachers ($n=130$) teaching learners in Grades 10 to 12. The participants differed in their years of teaching. In line with Richter et al. (2011) and Day and Gu (2009), the study distinguished between early-career (five years and less teaching experience), mid-career (between six and 20 years of teaching experience), and late-career (21 years' and longer teaching experience) teachers.

Data collection and analysis

The ISGE questionnaire is self-rating and organized into two parts. The first part – ‘Instructional strategies in geography education’ – consists of 13 items and is divided into three components, namely ‘Teacher-centered instructional strategies’, ‘Individual instructional strategies’, and ‘Collaborative instructional strategies’. The second part refers to challenges experienced by geography teachers in the implementation of learner-centered instructional strategies and is divided into two components, namely ‘Geography learners and learning materials’ and ‘Time-consuming, overloaded curriculum, and geography teachers’ skills’. The responses to some of the items are rated by using a five-point Likert-type scale (1 = never; 2 = seldom; 3 = sometimes; 4 = often; 5 = usually).

The researchers employed various quantitative data analysis techniques in the study. An exploratory factor analysis of the items in the instrument ‘Instructional strategies and methods’ was conducted, and according to the grouping of items it is divided into three components, namely ‘Teacher-centered instructional strategies’, ‘Individual instructional strategies’, and ‘Collaborative instructional strategies’ (see Table 1). We tested the internal reliability for the ISGE questionnaire by calculating the Cronbach alpha reliability coefficient. According to Thietart (2007), a Cronbach alpha coefficient of ≥ 0.7 indicates that the applicable scale items are highly consistent. The Cronbach alpha values for the components were calculated, and all but one component were at an acceptable level (see Table 1).

Descriptive statistical techniques, such as the mean and standard deviation for the items in the two categories and components of the instructional strategies in the ISGE questionnaire, were applied to organize, analyze, and interpret the quantitative data for the early-career, mid-career, and late-career geography teachers.

We also calculated Spearman’s correlation coefficients to determine the strength of the relationship between the geography teachers’ years of teaching and the implementation of instructional strategies, as well as the challenges with the implementation of learner-centered instructional strategies.

Practical significance indicates whether the differences are large enough to have an effect in practice (Ellis and Steyn 2003). We calculated the practical significance (effect size) of the differences with reference to geography teachers with different years of teaching and their implementation of teacher- and learner-centered instructional strategies, as well as the challenges they experienced with the implementation

of learner-centered instructional strategies, with Cohen’s *d*-values, which is a standardized difference between the means of the different groups. The following guidelines were used for the interpretation of the practical significance of results (*d*-value; Cohen 1988): small effect: *d* 0.2; medium

effect: *d* 0.5; and large effect: *d* 0.8.
$$d = \frac{|\bar{x}_1 - \bar{x}_2|}{S_{\max}}$$

Results

Implementation of instructional strategies by geography teachers

An analysis of the data from the responses of the geography teachers regarding their implementation of different instructional strategies in their classrooms is presented in Table 2. With reference to the component ‘Teacher-centered instructional strategies’, all the items received high ratings from most of the geography teachers. The teachers indicated that they often ($n=43$ or 33.1%) or usually ($n=67$ or 55.5%) used questions and answers, with a mean score of 4.32. The completion of assignments by the learners, as well as lectures and demonstrations by the geography teacher, received the second and third highest ratings in this category, with mean scores of 4.11 and 3.95 respectively.

In the component ‘Individual instructional strategies’, the geography teachers stated that they often ($n=60$ or 46.2%) or usually ($n=20$ or 15.4%) implemented learners’ reporting back in class ($\bar{X} = 3.50$). The items ‘Experiments’, ‘Games and simulation’, and ‘Fieldwork and fieldwork excursions’ received low mean scores, with means of respectively 2.17, 2.29, and 2.46. With reference to the component ‘Collaborative instructional strategies’, more than half of the geography teachers (58.5%) indicated that they often or usually implemented enquiry-based learning in their classroom ($\bar{X} = 3.73$), while role-play and debates received the lowest mean scores of 2.63 and 2.66.

The relationship between the geography teachers’ years of teaching and the implementation of instructional strategies in the geography curriculum

In this study, it was found that there was a moderate but highly significant relationship between the geography teachers’ years of teaching and the implementation of teacher-centered instructional strategies ($r=0.257$; $p=0.003$) in the geography classroom (see Maree 2016). With reference to the individual items, it is clear from Table 3 that ‘Assignments’ and ‘Completion of worksheets’ by learners received higher mean scores from the late-career and mid-career geography teachers when compared to the early-career geography teachers, with a medium practically significant difference.

With reference to the relationship between the geography teachers’ years of teaching and the implementation of individual instructional strategies, a weak but borderly significant relation ($r=0.172$; $p=0.051$) was found (see Pietersen and Maree 2016). From Table 4, the mid-career and

Table 1. Cronbach alpha values for the components of the instructional strategies in the geography education instrument.

Categories	Components	Cronbach alpha
Instructional strategies and methods	Teacher-centered instructional strategies	0.521
	Individual learner-centered instructional strategies	0.711
	Collaborative instructional strategies	0.757
Challenges with the implementation of learner-centered instructional strategies	Geography learners and learning materials	0.723
	Time-consuming, overloaded curriculum, and geography teachers’ skills.	0.736

Table 2. The geography teachers' implementation of instructional strategies in their classrooms ($n=130$).

Components	Items	Never	Seldom	Sometimes	Often	Usually	$\bar{X}$	SD
Teacher-centered instructional strategies	Questions and answers	2 (1.5%)	1 (0.8%)	17 (13.1%)	43 (33.1%)	67 (51.5%)	4.32	0.85
	Assignments	0 (0%)	2 (1.5%)	26 (20%)	58 (44.6%)	44 (33.8%)	4.11	0.77
	Lectures and demonstrations by the teacher	3 (2.3%)	13 (10%)	24 (18.5%)	37 (28.5%)	53 (40.8%)	3.95	1.10
	Completion of worksheets	10 (7.7%)	10 (7.7%)	28 (21.5%)	49 (37.7%)	33 (25.4%)	3.65	1.17
Individual instructional strategies	Total						4.01	0.63
	Learners reporting back in class	11 (8.5%)	13 (10.0%)	26 (20%)	60 (46.2%)	20 (15.4%)	3.50	1.13
	Fieldwork and fieldwork excursions	37 (28.5%)	36 (27.7%)	24 (18.5%)	26 (20.0%)	7 (5.4%)	2.46	1.25
	Games and simulation	46 (35.4%)	32 (24.6%)	26 (20.0%)	20 (15.4%)	6 (4.6%)	2.29	1.23
	Experiments	43 (33.1%)	42 (32.3%)	29 (22.3%)	12 (9.2)	4 (3.1%)	2.17	1.09
Collaborative instructional strategies	Total						2.61	0.89
	Enquiry-based learning	1 (0.8%)	9 (6.9%)	44 (33.8%)	46 (35.4%)	30 (23.1%)	3.73	0.92
	Cooperative learning (group work)	8 (6.2%)	28 (21.5%)	33 (25.4%)	39 (30%)	22 (16.9%)	3.30	1.17
	Problem-based learning and problem-solving activities	9 (6.9%)	22 (16.9%)	48 (36.9%)	40 (30.8%)	11 (8.5%)	3.17	1.04
	Debates	22 (16.9%)	36 (27.7%)	43 (33.1%)	22 (16.9%)	7 (5.4%)	2.66	1.11
	Role-play	33 (25.4%)	32 (24.6%)	25 (19.2%)	30 (23.1%)	10 (7.7%)	2.63	1.30
	Total						3.10	0.76

Table 3. Relation between the geography teachers' years of teaching and the implementation of teacher-centered instructional strategies.

Items	Years of teaching	N	$\bar{X}$	SD	d-value	
					Early-career	Mid-career
Questions and answers	Early-career	49	4.31	0.77		
	Mid-career	45	4.31	1.04	0.00	
	Late-career	36	4.36	0.68	0.07	0.05
	Total	130	4.32	0.85		
Assignments	Early-career	49	3.84	0.85		
	Mid-career	45	4.27	0.65	0.51*	
	Late-career	36	4.28	0.70	0.52*	0.02
	Total	130	4.11	0.77		
Lectures and demonstrations by the teacher	Early-career	49	3.84	1.07		
	Mid-career	45	4.02	1.08	0.17	
	Late-career	36	4.03	1.18	0.16	0.00
	Total	130	3.95	1.10		
Completion of worksheets	Early-career	49	3.27	1.22		
	Mid-career	45	3.80	1.06	0.44*	
	Late-career	36	4.00	1.10	0.60*	0.18
	Total	130	3.65	1.17		

d-value: small effect: $d \approx 0.2$; medium effect: $d \approx 0.5^*$; and large effect; $d \approx 0.8^{**}$.

late-career teachers received slightly higher ratings when compared to the early-career teachers, with medium to small practically significant differences. The item 'Fieldwork and field excursions' received higher mean scores from the late-career and mid-career geography teachers when compared to the early-career geography teachers, with medium practically significant differences (d-values of 0.50 and 0.38). The late-career geography teachers responded that they implemented experiments more in comparison to the early-career and mid-career teachers, with respectively medium and small practically significant differences of 0.40 and 0.19. However, the mid-career and late-career geography teachers responded more positively to the implementation of games and simulation in their classrooms compared to the early-career geography teachers, with small practically significant differences of 0.30 and 0.29 respectively.

In this study, it was found that the geography teachers' years of teaching had no significant relation with the

Table 4. Relation between the geography teachers' years of teaching and the implementation of individual instructional strategies.

Items	Years of teaching	N	$\bar{X}$	SD	d-value	
					Early-career	Mid-career
Learners reporting back in class	Early-career	49	3.37	1.17		
	Mid-career	45	3.78	1.02	0.35	
	Late-career	36	3.33	1.17	0.03	0.38
	Total	130	3.50	1.13		
Fieldwork and fieldwork excursions	Early-career	49	2.12	1.15		
	Mid-career	45	2.62	1.32	0.38	
	Late-career	36	2.72	1.21	0.50*	0.08
	Total	130	2.46	1.25		
Games and simulation	Early-career	49	2.06	1.14		
	Mid-career	45	2.44	1.32	0.29	
	Late-career	36	2.42	1.20	0.30	0.02
	Total	130	2.29	1.23		
Experiments	Early-career	49	1.96	1.02		
	Mid-career	45	2.20	1.10	0.22	
	Late-career	36	2.42	1.13	0.40	0.19
	Total	130	2.17	1.09		

d-value: small effect: $d \approx 0.2$; medium effect: $d \approx 0.5^*$; and large effect; $d \approx 0.8^{**}$.

component 'Collaborative learner-centered instructional strategies' ($r=0.005$; $p=0.959$). It can be seen in Table 5 that the number of years of teaching geography has no influence on the implementation of collaborative instructional strategies. However, the mid-career geography teachers responded more positively to the implementation of role-play in their classrooms compared to the early-career and late-career geography teachers, with small practically significant differences of 0.30 and 0.23 respectively.

Challenges that the geography teachers experience in the implementation of learner-centered instructional strategies

An analysis of the data from the responses of the geography teachers about the challenges that they experience with the implementation of learner-centered instructional strategies is presented in Table 6. With reference to the component

Table 5. Relation between the geography teachers' years of teaching and the implementation of collaborative instructional strategies.

Items	Years of teaching	N	$\bar{X}$	SD	d-value	
					Early-career	Mid-career
Enquiry-based learning	Early-career	49	3.71	0.94		
	Mid-career	45	3.84	1.00	0.13	
	Late-career	36	3.61	0.80	0.11	0.23
	Total	130	3.73	0.92		
Cooperative learning (group work)	Early-career	49	3.35	1.22		
	Mid-career	45	3.36	1.07	0.01	
	Late-career	36	3.17	1.23	0.15	0.15
	Total	130	3.30	1.17		
Problem-based learning/ problem-solving activities	Early-career	49	3.14	1.10		
	Mid-career	45	3.27	1.05	0.11	
	Late-career	36	3.08	0.94	0.05	0.17
	Total	130	3.17	1.04		
Debates	Early-career	49	2.57	1.15		
	Mid-career	45	2.76	1.19	0.15	
	Late-career	36	2.67	0.96	0.08	0.07
	Total	130	2.66	1.11		
Role-play	Early-career	49	2.47	1.29		
	Mid-career	45	2.87	1.32	0.30	
	Late-career	36	2.56	1.25	0.07	0.23
	Total	130	2.63	1.29		

d-value: small effect: $d \approx 0.2$; medium effect: $d \approx 0.5^*$; and large effect; $d \approx 0.8^{**}$.

'Geography learners and learning materials', all the items received 3.65 and higher ratings from the geography teachers. More than 70% of the geography teachers strongly agreed or agreed that the items 'Geography learners and their parents expecting the geography teacher to teach the learners' ($\bar{X} = 4.06$) and "The large number of learners per geography class complicates the implementation of active learning strategies in the geography classroom' ($\bar{X} = 4.03$) were some of the most important challenges with the implementation of active learning in the geography classrooms.

In the component 'Time-consuming, overloaded curriculum, and geography teachers' skills', the items 'An overloaded geography curriculum causes geography teachers not to implement active learning strategies' and 'Geography learners are not yet ready to take responsibility for their learning' both received the highest mean score ($\bar{X} = 3.62$). Nearly half ($n=55$ or 47.7%) of the geography teachers totally disagreed or disagreed with the statement that 'Geography teachers do not have the necessary skills to effectively implement active learning strategies in their classrooms', while 26.2% of the teachers were not sure about it.

The relation between the geography teachers' years of teaching and the challenges in implementing learner-centered instructional strategies

In this study, it was found that the geography teachers' years of teaching had a weak but significant negative relation with the component 'Geography learners and learning materials' ($r = -0.203$; $p = 0.020$). Concerning the individual items in this component (refer to Table 7), the item 'There are not enough learning materials (resources) in geography classrooms to do active learning' received a higher mean score from the early-career geography teachers when compared to the mid- and late-career teachers, with medium practically significant differences of 0.56 and 0.46 respectively. Regarding

the statement 'Language barriers of geography learners restrict active learning activities in geography classrooms', the early-career ($\bar{X} = 3.94$) and mid-career ($\bar{X} = 3.73$) geography teachers received higher mean scores compared to the late-career teachers ($\bar{X} = 3.25$), with medium and small practically significant differences of 0.48 and 0.34. The early-career geography teachers also rated the item 'Geography learners and their parents expect the geography teacher to teach the learners' higher in comparison to the late- and mid-career teachers, with medium and small practically significant differences of 0.41 and 0.33.

In this study, it was found that there was no significant relation between the geography teachers' years of teaching with the component 'Time-consuming, overloaded curriculum, and geography teachers' skills' ($r = 0.008$; $p = 0.929$). Concerning the various items in this component, no to small practically significant differences were observed between the various groups of geography teachers (Refer to Table 8). About the item 'Geography learners are not ready to take responsibility for their own learning', the early-career teachers received a higher mean score ($\bar{X} = 3.84$) compared to the late-career ($\bar{X} = 3.42$) and mid-career teachers ($\bar{X} = 3.25$), with small practical significant differences of 0.34 and 0.22.

Discussion

The purpose of this South African case study was to investigate whether geography teachers implemented teacher- and learner-centered instructional strategies in their classrooms and what challenges they experienced in implementing learner-centered instructional strategies. This case study can serve as an example to geography educators in other countries in exploring the implementation of teacher-centered and learner-centered instruction by geography teachers in their classrooms. The results of this research provide supporting evidence that most of the geography teachers in a South African context, even more so for

Table 6. Challenges the geography teachers experience with the implementation of learner-centered instructional strategies in their classrooms (N=130).

Components	Items	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	$\bar{X}$	SD
Geography learners and learning materials	Geography learners and their parents expect the geography teacher to teach the learners	3 (2.3%)	10 (7.7%)	17 (13.1%)	46 (35.4%)	54 (41.5%)	4.06	1.03
	The large number of learners per Geography class complicates the implementation of active learning strategies in the geography classroom	4 (3.1%)	10 (7.7%)	20 (15.4%)	40 (30.8%)	56 (43.1%)	4.03	1.09
	The focus on examination results hinders the implementation of active learning strategies in Geography education	6 (4.6%)	10 (7.7%)	28 (21.5%)	41 (31.5%)	45 (34.6%)	3.84	1.13
	Language barriers of Geography learners restrict active learning activities in the geography classroom	11 (8.5%)	10 (7.7%)	29 (30.8%)	40 (30.8%)	40 (30.8%)	3.68	1.23
	There are not enough learning materials (resources) in Geography classrooms to do active learning	9 (6.9%)	16 (12.3%)	25 (19.2%)	41 (31.5%)	39 (30%)	3.65	1.23
Total		12 (9.2%)	15 (11.5%)	24 (18.5%)	39 (30.0%)	40 (30.8%)	3.81	0.81
Time-consuming, overloaded curriculum, and Geography teachers' skills	An overloaded Geography curriculum causes Geography teachers not to implement active learning strategies	12 (9.2%)	15 (11.5%)	23 (17.7%)	41 (31.5%)	39 (30.0%)	3.62	1.28
	Geography learners are not yet ready to take responsibility for their own learning	20 (15.4%)	20 (15.4%)	36 (27.7%)	37 (28.5%)	17 (13.1%)	3.08	1.26
	It is time-consuming to implement active learning strategies in the geography curriculum	31 (23.8%)	20 (15.4%)	23 (17.7%)	33 (25.4%)	23 (17.7%)	2.98	1.44
	Active teaching and learning strategies cause discipline problems in the geography classroom	33 (25.4%)	29 (22.3%)	34 (26.2%)	28 (21.5%)	6 (4.6%)	2.58	1.21
	Geography teachers do not have the necessary skills to effectively implement active learning strategies in their classrooms							
Total							3.22	0.89

early-career teachers, in this study find it difficult to find a balance in the implementation of teacher-centered and learner-centered instructional strategies in their classrooms. Although it is required of geography teachers in South Africa to implement active and critical learning, the results of the study clearly state that most geography teachers still predominantly implement teacher-centered instructional strategies, such as questions and answers, the completion of assignments by the learners, and lectures and demonstrations in their classrooms. These findings are consistent with the previous findings of other South African and African researchers on geography education, such as Akello, Timmerman, and Namusisi (2016), Wilmot and Dube (2015), Ockhuizen (2018), Kaya (2018), Mpaso (2018), Mukondeleli (2018), and Felix (2021). Although the geography teachers highlighted various valid challenges with the implementation of learner-centered instruction, Paniagua and Sánchez-Martí (2018) pointed out the fact that although it is expected of teachers to implement more innovative learner-centered instruction in their classrooms, nothing will happen to them if they do not comply to this expectation.

With specific reference to learner-centered instructional strategies, the use of collaborative learner-centered instructional strategies, such as enquiry-based learning and cooperative learning, in geography classrooms received slightly higher ratings from the teachers compared to the use of individual learner-centered instructional strategies, although it is much lower ratings compared to the use of traditional teacher-centered instructional strategies. A possible reason for using these two collaborative learner-centered instructional strategies can be that in the geography *Curriculum and Assessment Policy Statement* (South Africa 2011), it is specifically recommended that geography teachers implement enquiry-based and cooperative learning in their classrooms. Interestingly, this contrasts with Wilmot and Dube's (2015) findings that geography teachers do not really understand or implement enquiry-based learning in their classrooms.

With reference to the influence of geography teachers' years of teaching on their implementation of teacher- and learner-centered instructional strategies, the mid- and late-career geography teachers held slightly higher perceptions that they implemented more teacher-centered and learner-centered individual instructional strategies, such as fieldwork, games and simulations, as well experiments in their classrooms in comparison to the early-career teachers. These findings concur with the studies of Kyndt et al. (2016), Lim and Chai (2008), Thompson et al. (2013), Ingersoll and Strong (2011), and Richter et al. (2011) in other disciplines, where more experienced teachers indicated that they were willing to experiment with new, learner-centered instructional strategies to improve their instructional repertoire. Kyndt et al. (2016) reported that mid- and late-career teachers are more confident in their teaching abilities compared to early-career teachers, while Thompson et al. (2013) state that early-career teachers often avoid learner-centered instructional strategies and rather implement less challenging teacher-centered instructional strategies. Interestingly, in this

Table 7. Relation between the geography teachers' years of teaching and challenges with geography learners and learning materials.

Items	Years of teaching	N	$\bar{X}$	SD	d-value	
					Early-career	Mid-career
Geography learners and their parents expect the geography teacher to teach the learners	Early-career	49	4.31	0.96		
	Mid-career	45	3.89	1.03	0.41*	
	Late-career	36	3.94	1.09	0.33*	0.05
	Total	130	4.06	1.03		
The large number of learners per geography class complicates the implementation of active learning strategies in the geography classroom	Early-career	49	4.06	1.18		
	Mid-career	45	3.93	1.10	0.11	
	Late-career	36	4.11	0.95	0.04	0.16
	Total	130	4.03	1.09		
The focus on examination results hinders the implementation of active learning strategies in geography education	Early-career	49	3.96	1.06		
	Mid-career	45	3.71	1.14	0.22	
	Late-career	36	3.83	1.21	0.10	0.10
	Total	130	3.84	1.13		
Language barriers of Geography learners restrict active learning activities in the geography classroom	Early-career	49	3.94	1.03		
	Mid-career	45	3.73	1.18	0.17	
	Late-career	36	3.25	1.44	0.48*	0.34
	Total	130	3.68	1.23		
There are not enough learning materials (resources) in geography classrooms to do active learning	Early-career	49	4.04	1.14		
	Mid-career	45	3.47	1.24	0.46*	
	Late-career	36	3.36	1.22	0.56*	0.09
	Total	130	3.65	1.22		

d-value: small effect: $d \approx 0.2$; medium effect: $d \approx 0.5^*$; and large effect; $d \approx 0.8^{**}$.

Table 8. Relation between the geography teachers' years of teaching and challenges with time, an overloaded curriculum, and geography teachers' skills.

Items	Years of teaching	N	$\bar{X}$	SD	d-value	
					Early-career	Mid-career
An overloaded geography curriculum causes geography teachers not to implement active learning strategies	Early-career	49	3.67	1.36		
	Mid-career	45	3.67	1.11	0.01	
	Late-career	36	3.47	1.40	0.14	0.14
	Total	130	3.62	1.28		
Geography learners are not yet ready to take responsibility for their own learning	Early-career	49	3.84	1.25		
	Mid-career	45	3.53	1.36	0.22	
	Late-career	36	3.42	1.20	0.34	0.09
	Total	130	3.62	1.28		
It is time-consuming to implement active learning strategies in the geography curriculum	Early-career	49	3.08	1.22		
	Mid-career	45	2.96	1.36	0.09	
	Late-career	36	3.25	1.18	0.14	0.22
	Total	130	3.08	1.26		
Learner-centered instructional strategies cause discipline problems in the geography classroom	Early-career	49	3.06	1.45		
	Mid-career	45	2.87	1.41	0.13	
	Late-career	36	3.00	1.51	0.04	0.09
	Total	130	2.98	1.44		
Geography teachers do not have the necessary skills to effectively implement active learning strategies in their classrooms	Early-career	49	2.47	1.12		
	Mid-career	45	2.67	1.28	0.15	
	Late-career	36	2.61	1.27	0.11	0.04
	Total	130	2.58	1.21		

d-value: small effect: $d \approx 0.2$; medium effect: $d \approx 0.5^*$; and large effect; $d \approx 0.8^{**}$.

study, there were small significant differences between the early-career teachers and more experienced teachers' implementation of learner-centered instruction; therefore, questions can be raised about the effectiveness of professional development programs in supporting and training more experienced geography teachers in the implementation of learner-centered instruction.

The challenges highlighted by most of the geography teachers in this study include that geography learners and their parents expect the teacher to teach the learners, large numbers of learners per geography class, a focus on examinations, language barriers among learners, and an overloaded geography curriculum. Most of these challenges are also reported in other South African and African studies on school education (e.g., Akello and Timmerman 2018; Bature and Atweh 2020; Bongani 2019; Holzer, Sessig, and Lüftenegger 2023; Lattimer 2015; Mathews and Adams 2016;

Mpaso 2018; Mungoo and Moorad 2015; Ockhuizen 2018). Interestingly, in this study most geography teachers indicated that the learners and parents expected them to use teacher-centered instruction. This can possibly be explained by the findings of Holzer et al. (2023) that the participating learners tended to compare lessons by different teachers in other subjects and, therefore, expected geography teachers to teach them. It can also be that for most learners, learner-centered instruction increases their workload (Ruiz-Gallardo et al. 2011) and they do not understand the purpose of active learning (Deslauriers, Schelew, and Wieman 2011). According to Armstrong (2009), in some cases parents still hold the perception of classrooms where learners sit in rows of desks, and the teacher teaches the learners.

Most of the teachers also highlighted that the large number of learners per geography class complicates the implementation of learner-centered instructional strategies. A possible reason,

as highlighted by Mpas0 (2018) and Mtika and Gates (2010), can be that not all teachers have the necessary facilitation skills to implement and facilitate learner-centered instruction in large and under-resourced classes.

Regarding the relationship between geography teachers' years of teaching and their perceptions of the challenges in the implementation of learner-centered instructional strategies in the geography classroom, no significant differences were reported in this study. These results concur with the findings of Diković and Gergorić (2020), but contrast with Isikoglu, Basturk, and Karaca (2009). While it can be expected that early-career teachers do not feel well prepared to cope with all the mentioned challenges with the implementation of learner-centered instruction, the expectation is that mid- and late-career teachers have had time to develop their skills to overcome these challenges to implement active learning strategies. Therefore, the question can be raised as to why continuous professional development programs have not equipped mid- and late-career teachers in the implementation of learner-centered instructional strategies in challenging South African learning environments. In this regard, Admiraal and Kittelsen Røberg (2023) point out that challenging working conditions in schools, as highlighted in this South African study, can have a negative influence on teachers' implementation of active instructional strategies.

Conclusion and recommendations

This study enriches and enhances prior research about South African geography teachers' implementation of teacher-centered and learner-centered instructional strategies in their classrooms. The findings stated that most of these geography teachers implemented teacher-centered instructional strategies in their classrooms regularly. Only a few learner-centered instructional strategies, such as reporting back in class, enquiry-based learning, and cooperative learning, were usually or often implemented by geography teachers, while fieldwork, debates, role-play, and simulations were seldom implemented. Therefore, it seems that geography teachers are still struggling to find a balance in the implementation of learner-centered instructional strategies. No relation was found between the geography teachers' years of teaching and the implementation of teacher-centered and learner-centered instructional strategies. However, more mid- and late-career geography teachers held the perception that they implemented more learner-centered instructional strategies in their classrooms in comparison to the early-career teachers.

In this study, the challenges with regard to the implementation of learner-centered instructional strategies, as highlighted by most of the geography teachers, include geography learners and their parents expecting the teacher to teach the learners, large numbers of learners per geography class, a focus on the examinations, language barriers among learners, an overloaded geography curriculum, and some geography learners not being ready to take responsibility for their learning. Also, no relation between geography teachers' years of teaching and their perceptions of the challenges with the implementation of learner-centered instructional strategies in geography classrooms could be found.

To conclude, a key challenge in implementing teacher-centered and learner-centered instructional strategies in school geography classrooms to foster 21st-century skills lie in the lack of context-specific understanding of teaching practices and meaningful ways of supporting teacher professional development. Against this background, the researchers offer the following recommendations for the further development of geography teacher education in South Africa as well as in other countries where teacher-centered instruction in school geography education is still dominant: The implementation of learner-centered instructional strategies should be extended. The training of geography student teachers should specifically be focused on the planning and design of learner-centered instructional activities, whereafter it is then expected of them to implement learner-centered instructional strategies during their work-integrated learning sessions at schools. In the training of student teachers, geography educators should recognize the challenges early-career geography teachers experience with the implementation of learner-centered instructional strategies in geography classrooms. It is, therefore, necessary to train, assist, and guide these student teachers through possible challenges they may one day experience as geography teachers. Despite an examination-driven education system, it is necessary to promote and support a 'teach less and learn more' class environment. It is important that school induction programs support early-career geography teachers in the implementation of learner-centered instruction in large and under-resourced geography classes. The necessity for learner-centered instruction in geography classrooms should be promoted and communicated by the Department of Education and school management to teachers, parents, and learners. The Department of Education and teacher education institutions should motivate in-service teachers to get involved in self-directed professional learning in the implementation of learner-centered instruction. The Department of Education should provide in-service geography teachers with the necessary online training and online resources and create online opportunities to network and learn with and from other geography teachers how to overcome the mentioned challenges in the implementation of learner-centered instructional strategies. Geography teachers in a school or neighboring schools should observe one another's lessons with a focus on promoting the implementation of learner-centered instruction. If geography teachers implement different learner-centered instructional strategies in their classrooms on a regular basis, with time, they will develop the necessary skills to plan and implement these strategies in their teaching. It is further recommended that the Department of Education, geography subject advisors and geography Head of Departments must monitor and assess on a regular basis if geography teachers implemented teacher- and learner-centered instruction basis in their classrooms.

Ethical approval

This project complied with all the ethical regulations of the university under the auspices of which it was conducted and was approved by the ethics committee of the university. The respondents gave written consent for the information they provided to be used in this study, and their participation was voluntary.

Disclosure statement

No potential conflict of interest was reported by the authors.

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