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Mathematics Teachers' Perceptions of the Principal's Role in Managing the Instructional Programme of the School

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Abstract

Instructional leadership practices in terms of defining the school mission, managing instructional programmes, and developing a positive school learning climate are significantly and positively associated with teachers' effectiveness. Such practices have also been found to be critical in promoting teacher learning and development both at school and higher education levels. The key question posed in this study was what mathematics teachers' perceptions of their principal's management of the instructional programme of their schools were. The Principal Instructional Management Rating Scale was used as a lens for evaluating teacher perceptions in the study. The study was conducted in two Quintiles 1–3 schools in the town of Kariega, Eastern Cape, South Africa where two secondary school and three primary school teachers participated. The lower socioeconomic status of the two schools under scrutiny seemed to have played a role in the teachers' perceptions of the principals' role as instructional leader. Although the principals conducted and facilitated several professional development sessions with the mathematics teachers, the principal and his assistants were not always familiar with the mathematics pedagogical content knowledge that was required to evaluate lessons at the required level. Factors such as learner discipline, lack of parental support, and socioeconomic problems surrounding the school had an impact on the principals' ability to exercise instructional leadership in their schools.

Keywords: instructional leadership, quintile, instructional programme, perceptions, leadership function
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Background and Introduction

The United Nations has set up a blueprint for a more prosperous world (Eloff, 2024)—the 2030 Agenda for Sustainable Development, which has 17 Sustainable Development Goals (SDGs). This Agenda detailed the urgent priorities needed for more decisive and effective action to ensure the 2030 promise to end poverty, protect the planet, and leave no one behind. SDG 4 regards quality education as integral to the 17 SDGs, and education for sustainable development is critical for attaining all the goals, according to Eloff. She further noted that one of the main aims of SDG 4 for quality education is to ensure that by 2030, all learners can complete freely accessible, equitable, and relevant quality primary and secondary education that results in effective learning.

The South African Schools Act (Republic of South Africa, 1996) provided a quintile ranking system in which Quintile 1 is the group of schools in each province catering to the poorest 20% of learners, Quintile 2 schools cater for the next poorest 20% of schools, and so on, continuing to Quintile 5. Quintiles 1–3 schools are no-fee schools, and are allocated a higher state subsidy than the more affluent Quintiles 4–5 schools. Several research studies have suggested that poorly resourced Quintiles 1–3 schools perform badly in mathematics compared to their Quintiles 4–5 counterparts (Spaull et al., 2022). Pournara (2020) reported that in South Africa, Grade 9 learners in well-resourced Quintile 5 schools are approximately four years ahead in mathematics than their counterparts in poorly resourced Quintile 1–3 schools. Principals based in Quintiles 1–3 schools in South Africa face serious challenges, according to Spaull et al. (2022). Many of these problems relate to the many curricula reforms the country has gone through, the crime rate that impacts communities in which the schools are situated, and the drug abuse and poverty that continue to affect school performance negatively—and particularly in Quintiles 1–3 schools.

However, leadership (or lack thereof) plays a critical role in school performance, according to Cunningham et al. (2024). Instructional leadership implies prioritising improving the teaching quality and academic outcomes in a school, which can lead to more effective teaching and learning (Bada et al., 2020). Teachers play an essential role in helping the school leadership define and communicate the school's mission, manage the school's instructional programme, and develop a positive learning climate (Hallinger & Murphy, 1986). Hallinger and Murphy further described those three building blocks of instructional leadership in an instrument they created for measuring a school's instructional leadership quality, namely,

the Principal Instructional Management Rating Scale (PIMRS). As a result of the powerful position held by teachers and the critical role played by leadership, especially instructional leadership in a school, the current study explored mathematics teachers' perceptions of their principal's instructional leadership role.

Mathematics is vital to any country's economic, scientific, and technological development (Van Le & Tran, 2024). On the other hand, Judijanto et al. (2024) described mathematics as an instrument for logical and deductive thinking in science. Moreover, according to those authors, mathematics is the basis of programming languages, which form the basis of hardware and software development such as those used to create animated videos. Countries that ignore mathematics education and do not regard the subject as a top priority will be left behind in all fields (Judijanto et al., 2024).

Many countries, including South Africa, have deemed it necessary to measure and monitor the health of their education systems over time (Reddy, 2021). The Trends in International Mathematics and Science Study (TIMSS) assesses the mathematics and science knowledge of 4th- and 8th-grade learners around the world. The TIMSS, administered since 1995, has allowed for the comparison of mathematics performance across national borders. Moreover, contextual information collected by TIMSS from learners, teachers, parents, and schools has provided a rich dataset to explain the observed achievement levels (Reddy, 2021). In 2011, the Department of Basic Education (DBE) adopted the TIMSS measurements as a key educational performance indicator in South Africa (Reddy, 2021). Regrettably, since the country began participating in TIMSS, it has ranked last or second to last of all the participating countries (Reddy & Hannan, 2018). However, there has been some improvement in South Africa's TIMSS mathematics performance in recent years, although this has been slow. Capitalising on the benefits of computer-based assessments, the TIMSS was to be fully digitalised as of 2023 (Reddy & Hannan, 2018).

Socioeconomic and ethnic disparities may have a role to play in South Africa's poor academic achievement in the TIMSS assessment (Yang et al., 2024). Yang et al. highlighted the importance of teaching quality and practices in promoting educational equity, while Machebele and Weir-Smith (2024) emphasised the role of the spatial location of job opportunities in educational attainment. Hompashe (2024) agreed that instructional leadership was vital to any school's success. However, Hompashe further stated that instructional leadership might be less effective for under-resourced schools. The mathematics teachers who participated in the current study came from Quintiles 1–3 schools. These are under-resourced, no-fee township schools in South Africa. However, Hompashe's finding regarding under-resourced schools is in direct contrast to what is happening on the ground in South Africa.

Schools in the Motherwell township of the Nelson Mandela Bay Metro that show above-average levels of instructional leadership by the principal have performed exceptionally well in mathematics and other

subjects in recent years (Bezuidenhout & Govender, 2024). In the 2023 matriculation exams, two Quintiles 1–3 schools in Motherwell in the Nelson Mandela Metropolitan District, namely Soqhayisa High School and Motherwell High School, obtained 100% and 97,3% pass rates in mathematics, respectively (Bezuidenhout & Govender, 2024). A thorough study of the schools in question would have to be undertaken to determine the extent to which instructional leadership variables played a role in obtaining these excellent mathematics results.

The Eastern Cape Province is classified as poor because 95% of its schools are Quintiles 1–3 schools (Graven, 2014). These schools fall under the no-fee schools category in South Africa. A decline in learner performance as learners progress to higher grades, especially in subjects like mathematics, has been observed in these schools (Mpiti & Wambu, 2023). Moreover, researchers such as Short and McLean (2023) have established that learners from low-income backgrounds display worse mathematics outcomes than their privileged counterparts, and that their learning can already be disadvantaged before they begin formal schooling. This agrees with Gondwe’s Stellenbosch University publication, *Mathematics Performance of Primary School Learners: Lessons from TIMSS 2019*, which asserted that inequalities in educational achievement are more a product of differences in income, with learners from higher income groups on average outperforming their poorer counterparts (as cited in Wills & Gondwe, 2022). Hence, it would be useful to study mathematics teachers’ perceptions of their principals’ instructional leadership.

Problem Statement

Instructional leadership has been shown to lead to effective teaching and learning in the classroom (Bada et al., 2020). Some Quintiles 1–3 schools in the Nelson Mandela Bay Metropolitan Municipality in South Africa that seem to prioritise instructional leadership in their classrooms have yielded excellent matriculation results (Bezuidenhout & Govender, 2024). Thus, implementing an effective instructional programme in Quintiles 1–3 and better-performing schools can potentially turn many schools into centres of excellence.

Literature Review

The current study sourced literature to explore mathematics teachers’ perceptions of instructional leadership by focussing on the position occupied by South Africa in the assessment of Grades 4 and 5 and Grades 8 and 9 learners assessed using the TIMSS, the skills shortages that need to be addressed by developing mathematics education, as well as the role played by leadership in general (and instructional leadership in particular) in managing the instructional programme of the school. These are discussed briefly below, followed by a definition of instructional leadership to give the reader a clearer idea of the

concept. In addition, instructional leadership is discussed in the context of Quintiles 1–3 schools in South Africa. This is followed by describing the principal’s role in instructional leadership. Finally, literature on teachers’ perceptions of the principal’s instructional leadership role and the benefits of instructional leadership for the school are discussed.

TIMSS Assessment

More than 90% of the countries participating in the TIMSS 2019 Grades 4 and 5 assessments reached the minimum level of proficiency (Fishbein et al., 2021). In six of these countries, 100% of the participants met this benchmark. In the case of South Africa, only 37% of the learners who took the assessment achieved the benchmark (Reddy, 2021).

Several skills shortages have been identified in the education sector in South Africa due to poor performance in mathematics and other key subjects (Judijanto et al., 2024). South Africa faces numerous challenges, which include the lack of capacity of some teachers to provide high-quality education to learners. To illustrate the powerful association between mathematics and the skills shortage, Judijanto et al. (2024, p. 451) stated that mathematics can be used “as a basis for hardware and software development.” An observation made by TIMSS reveals that even though South African educators attended many skill-development initiatives, student performance reveals that these efforts have had no impact (Judijanto et al., 2024). The question then becomes: “How important are teachers’ perceptions of principals’ role in managing the instructional programme of a school?”

The Role of Leadership in School Success

A study by Thien et al. (2024) revealed the direct relationship between instructional leadership and teachers’ commitment to school, students, and teaching. Interestingly, their study did not report a positive relationship between instructional leadership and teacher commitment to the profession. Several stakeholders play an important role in school leadership for any school, consequently influencing academic performance (Bada et al., 2020). As much as parents, in the form of school governing bodies and as individuals, have a prominent role to play in school leadership, at the forefront of such leadership are the teachers, particularly the principal of the school. How teachers, amongst other stakeholders, perceive the principal’s leadership role in a school lies at the centre of the school’s academic success (Bada et al., 2020). Hence, the current study explored mathematics teachers’ perceptions of how their principals carried out their responsibilities as instructional leaders in two schools in Kariega, a town in the Nelson Mandela Bay Metropolitan Municipality in the Eastern Cape Province of South Africa.

What is Instructional Leadership?

Instructional leadership refers to leadership that supports the development of teaching and learning (Hallinger et al., 2020). It comprises three dimensions: defining the school mission, managing the school instructional programme, and promoting a positive school climate (Hallinger & Murphy, 1986). Defining the school mission involves more than just the principal framing the school's goals; it also involves communicating the importance of striving for said goals, according to Hallinger and Murphy. Managing a school's instructional programme involves supervising and evaluating teaching and learning. However, promoting the school climate includes protecting instructional time, maintaining high visibility, providing incentives for teaching and learning, and promoting professional development (Hallinger et al., 2020). An important question regarding instructional leadership is whether this task is the sole responsibility of the school principal, as Hallinger and Murphy's (1986) model suggests.

Munna (2023) discussed Weber's model, which disagrees with this view. Weber's instructional leadership model emphasised the importance of shared leadership and the empowerment of informal leaders (Munna, 2023). The latter model of instructional leadership seems the most appropriate in the context of Quintiles 1–3 schools in South Africa because the principal can share the responsibility with departmental heads (DHs), other relevant staff members, and parents. While Hallinger and Murphy's (1986) definition may be suitable for assessing instructional leadership in more resourced Quintiles 4–5 schools in South Africa, impoverished schools may not always have the luxury of sufficient content experts, especially in subjects such as mathematics.

Instructional Leadership in the Context of Quintiles 1–3 Schools

There is a growing belief that the school environment impacts the effectiveness of instructional leadership (Liu & Hallinger, 2024). Liu and Hallinger further stated that many scholars have rejected the one-size-fits-all approach regarding the effectiveness of instructional leadership in schools. The reason for this position, according to these authors, is that the standard definition of instructional leadership cannot sufficiently explain the effectiveness of leadership in schools such as the Quintiles 1–3 schools in South Africa. For example, impoverished schools may not have principals with the necessary pedagogical content knowledge to conduct effective classroom observations. Moreover, impoverished schools have many administrative issues concerning learner discipline and staff shortages. Quintiles 1–3 schools operate in conditions different from those in more privileged cultural settings. There is a dearth of information on the impact of instructional leadership in Quintiles 1–3 schools in South Africa. Thien et al. (2024) reported a similar situation in Chinese schools, hence the need for the current study.

One of the ways in which these schools can achieve quality education is by ensuring principals' effective instructional leadership (Cox & Mullen, 2023). Kilag et al. (2024) described instructional leadership as the

actions of school leaders that directly impact the quality of teaching and learning in schools. These school leaders are expected to provide teachers with direction, support, and resources to improve teaching practices and learner achievement (Kilag et al., 2024).

Recent literature points to a positive relationship between instructional leadership and teacher commitment in schools in several countries, worldwide (Sucitra et al., 2024). Moreover, findings from a study conducted in Nigeria (Bada et al., 2020) associated instructional leadership with teacher effectiveness. The Nigerian study used the PIMRS principles: defining the school mission, managing the instructional programme, and developing a positive school climate. The PIMRS, as explained below, was adopted as a lens for the current study.

Over the past three decades, a growing body of international research evidence has suggested that a principal's instructional leadership is essential for improving teaching and learning in school (Sucitra et al., 2024). However, in many parts of the world, the practice of instructional leadership remains poorly understood and outside the main job description of the principal (Sucitra, 2024). Instructional leadership is leadership that supports the development of teaching and learning.

Principal's Role as an Instructional Leader

A study by Bada et al. (2020) indicated that instructional leadership in terms of defining the school mission, managing instructional programmes, and developing a positive school learning climate are significantly and positively associated with teachers' effectiveness. Such instructional leadership practices have also been found to be critical in promoting teacher learning and development by Kilag and Sasan (2023). According to Munna (2023), instructional leadership is just as critical in higher education because it influences effective teaching and learning processes. The reason for the positive effect of instructional leadership is that it establishes a shared belief around learning, which can improve learners' academic achievement (Munna, 2023). An interesting comment made by Munna is that instructional leaders can also be found outside the school setting, in fact, according to that author, anyone who positively influences school outcomes is an instructional leader.

An important question is whether principals should be the only ones who are hands-on in carrying out instructional leadership practices. Munna (2023) disagreed. It is important to note that in bigger schools, principals may concentrate on building the leadership capacity of other school leaders in the school management team (SMT). It seems, therefore, that based on Munna's position, an instructional leader could carry out this task by delegating responsibility to fellow school leaders. However, Rodrigues and de Lima (2024) made an interesting observation in a study conducted in Portugal that the leadership practices

in the schools they investigated focused on school administration and management rather than student learning. In their study, school leaders regarded most principals' instructional leadership as weak. It would be interesting to see if this would apply to the mathematics teachers in the two Quintiles 1–3 schools participating in the current study.

The Research Project

The Tinarha Mathematics Leadership Project (TMLP) organised by Nelson Mandela University is an initiative to improve mathematics results at four schools in the Kariega community. After several online meetings with the chief education specialist (CES) for mathematics based at the Kariega DBE offices, it was decided that most children lacked number sense in mathematics, and that several workshops for teachers and principals would be organised. Mathematics content would be taught to intermediate and senior phase mathematics teachers, and school leadership workshops would be presented to participating school principals.

After the mathematics content had been identified by the three facilitators working together with the CES (Ms Mgobo of the DBE) there was a strong belief among most of them that leadership, or rather the lack thereof, had a role to play in the poor performance of the schools participating in the TMLP. The project started operating during the COVID-19 pandemic in 2021 and ended in 2023. The participants were divided into three groups: principals and SGB members, senior phase mathematics teachers, and intermediate phase mathematics teachers. The focus was mainly on instructional leadership when working with principals in their workshops. The leadership facilitator touched on other forms of leadership, such as transformative leadership, during the workshops.

The three parallel workshops were initially held at the Science Centre in the Kariega central business district but later moved to Limekhaya High School at KwaLanga in Kariega for reasons of convenience and access. Although many research studies have explored principals' instructional leadership activities, few have focussed on mathematics teachers' perspectives in this regard, particularly in South Africa's Quintiles 1–3 schools.

Aims and Objectives

Main Aim

To explore mathematics teachers' perceptions of the principals' management of the instructional programme of their schools.

Main Question

What are mathematics teachers' perceptions of their principals' management of the instructional programme of their schools?

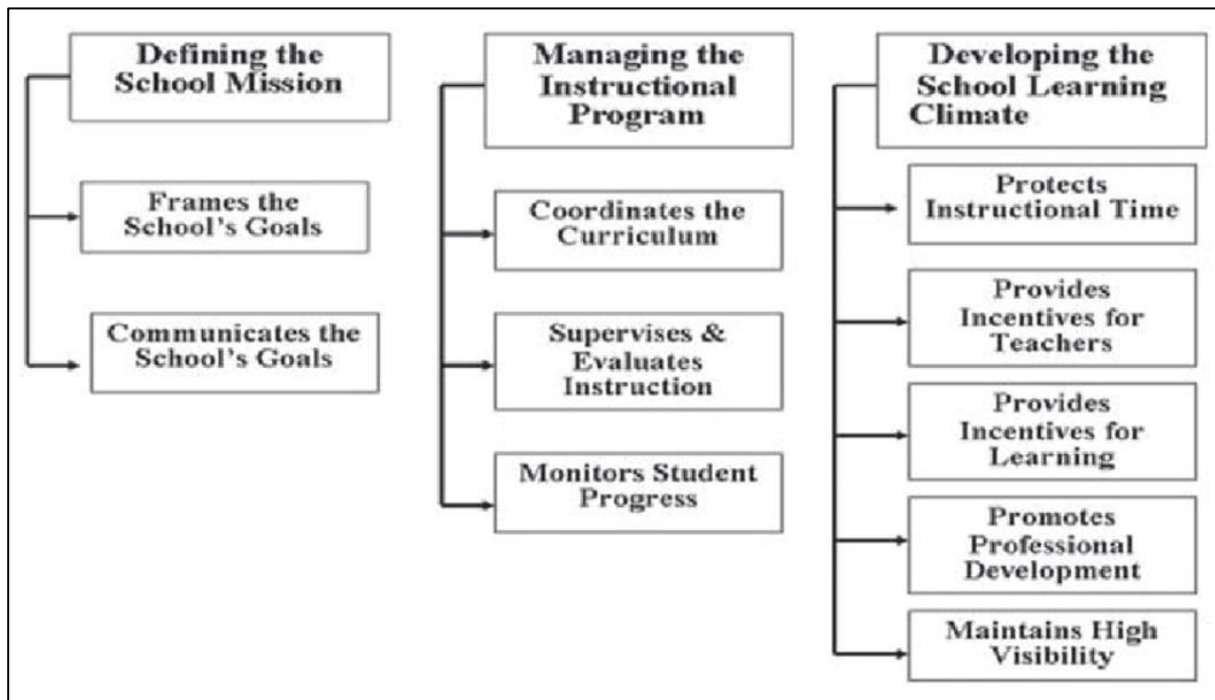
Conceptual Framework

The literature highlights several instruments for measuring instructional leadership. One of the more widely used internationally is the PIMRS, based on a conceptual framework developed by Hallinger and Murphy (1986). This instrument focuses on the principal's role as the school's instructional leader. The instrument presents a framework that conceptualises instructional leadership as a two-dimensional construct comprising leadership functions and leadership processes. The leadership functions described include: 1) framing and communicating school goals, 2) supervising and evaluating instruction, 3) coordinating curriculum, 4) developing high academic standards and expectations, 5) monitoring student progress, 6) promoting the professional development of teachers, 7) protecting instructional time, and 8) developing incentives for students and teachers. The leadership processes described are 1) communication, 2) decision-making, 3) conflict management, 4) group process, 5) change process, and 6) environmental interaction.

After discussing our views with the co-researchers, we analysed the emerging themes according to the above-mentioned leadership functions and processes, borrowing from the rating scale provided in Image 1.

Image 1

Principal Instructional Management Rating Scale (Adapted from Hallinger & Murphy, 1986, p. 275)



Research Methodology

Participatory Action Research Design

Cornish et al. (2023) described participatory action research (PAR) as a research approach that emphasises the importance of daily experiences in people's lives, where inequality exists, and replacing them with better alternatives. PAR is a qualitative research methodology that involves researchers and participants collaborating to understand social issues and take action to bring about social change. It is an umbrella term for all research approaches that engage stakeholders in each step of the research process (De Oliveira, 2023). De Oliveira noted that PAR has a disadvantage in that it introduces power relations within the research process. However, its advantages outweigh its disadvantages because PAR puts collective critical consciousness among the participants into practice, leading to democratising the research process (De Oliveira, 2023).

Moreover, the people experiencing issues take centre stage and participate fully in conducting the research to emancipate themselves (Cornish et al., 2023). The knowledge generated in this manner brings about the required change. In this way, the current study aimed to generate knowledge by letting teachers express their perceptions of the principal's instructional leadership practices in their schools and contribute towards introducing the required change. This knowledge will help schools implement leadership lessons to improve their learners' academic outcomes (Bada et al., 2020). The mathematics

teachers participating in the study took the position of both study co-participants and co-authors of this article.

The participating mathematics teachers in the study not only built relationships in the current study, becoming a community of practice, but also established working practices and a shared understanding of the issue; they observed, gathered, and generated materials and engaged in collaborative analysis, planning, and acting. The latter are the building blocks for PAR project design, as explained by Cornish et al. (2023). Kagola and Khau (2020) showed that engaging in participatory methodologies can provide a platform for the transformation of discourses towards equitable and socially just societies. In the same way, the current study could be used in courageous conversations with mathematics teacher communities about the implementation of instructional leadership in disadvantaged schools.

The current study aimed to understand mathematics teachers' lived experiences (Gomiolo et al., 2024) regarding how school principals carry out their instructional leadership activities. The focus was on the practice of principals' instructional leadership roles in executing the curriculum. Hence, an in-depth understanding of the subjective realities and meanings that individual teachers assigned to their lived experiences was sought to identify possible strategies to improving the execution of the mathematics curriculum. We adopted a critical paradigm as co-researchers and participants, allowing for the identification of problem areas and possible solutions that could be implemented to create conducive environments for the academic project in mathematics education.

Action research encourages democracy and abolishes the notion of the all-knowing, all-powerful academic "expert" by recognising that knowledge is context-bound, created in collaboration with others, and that interpretations are fluid and changing (Feekery, 2024). Wood (2012, p. 2) stated that "participants are regarded as practitioner-researchers, perfectly capable of finding workable ways to improve their own educational situations." Participatory action research promotes critical reflection and dialogue as the basis for research and action, according to Hensler et al. (2023); in other words, people are not treated as objects to be studied—instead, describe them as co-actors and co-constructors of knowledge.

Sampling and Sampling Technique

Five mathematics teachers from two Quintiles 1–3 schools based in Kariega, Eastern Cape, South Africa, participated in the research study as co-researchers. The co-researchers engaged in dialogue regarding the academic project of mathematics education and how their principals were enacting their instructional leadership role. Purposive sampling was used to select the study participants from the teachers who had participated in the Tinarha Mathematics Leadership Project. The participants were selected based on their

suitability for the phenomenon under study and their knowledgeability about it. The schools were sampled based on their quintile level and ease of access for the co-researchers (Campbell et al., 2020).

Data Generation Methods

The primary data generation method was unstructured focus group discussions among the co-researchers. The co-researchers' responses were recorded for further analysis. Only one unstructured open-ended question was used to guide the discussion: "What are your perceptions of your principals' management of the school's instructional programme?"

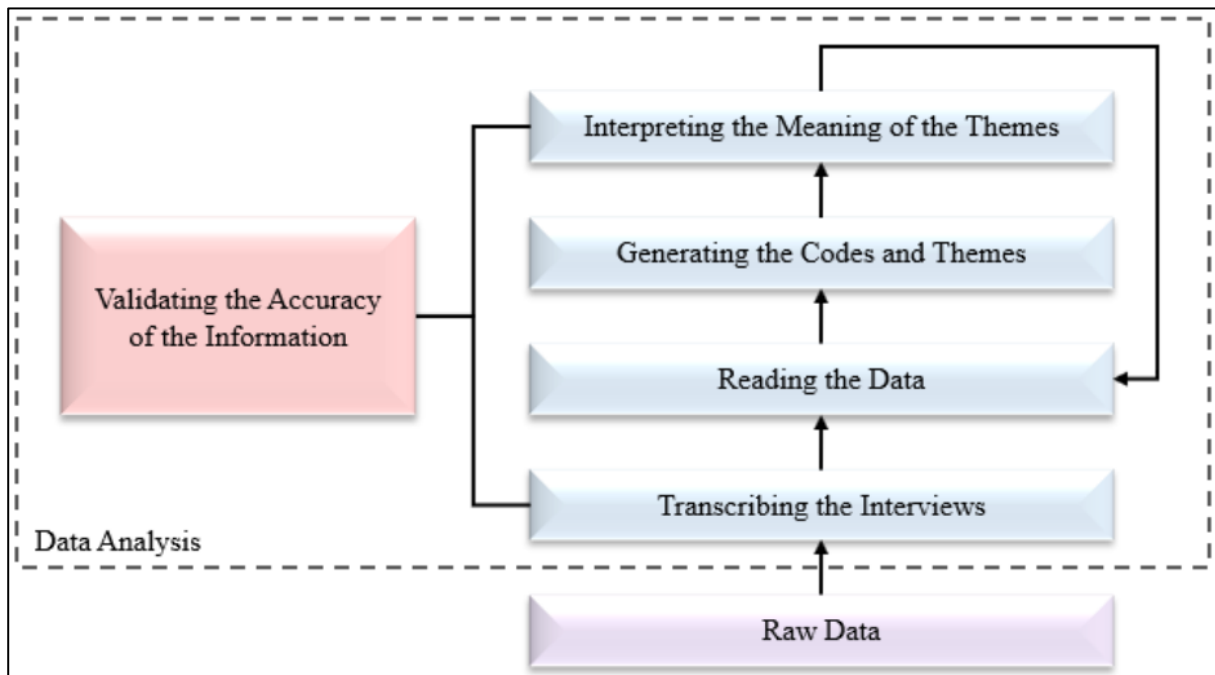
As a co-participant and researcher, I (first author) probed the other co-researchers for detailed information regarding the phenomenon under exploration. To lead into the discussion with the co-researchers, I reminded them of what they had learnt and discussed during the leadership workshops about instructional leadership.

Data Analysis

The data discussed in this article are from the first cycle of the action research spiral, aimed at highlighting possible strategies that could be implemented in the second cycle of the spiral to produce change in the status quo. Common themes in the data were identified using Creswell's (2013) steps as illustrated in Image 2. When the focus group discussions were completed, they were transcribed. The transcriptions were shared with the co-researchers to discuss during the collaborative data analysis phase. The transcriptions were read, discussed, and themes identified. The transcriptions were read several times until themes were identifiable.

Image 2

Qualitative Data Analysis Steps (adapted from Creswell, 2013)



Ethical Procedures

All participants (co-researchers) were protected from harm. The co-researchers are also co-authors in this study and they, therefore, waived their right to anonymity. They were informed that their participation was voluntary. They all signed informed consent and a confidentiality clause at the beginning of data generation. Site permission was obtained from the principals and the DBE office in Kariega. Schools were informed of their rights to participate in the research study and were made aware that they could withdraw from the study at any time, for any reason, as autonomous individuals (Capili & Anastasi, 2024).

Findings

Several themes were identified during the unstructured focus group discussions among the co-researchers, namely, principals' and DHs' mathematics content knowledge, principal–parent collaboration, principal–teacher–DBE collaboration, communication of school goals, professional development and incentives, and supervision of learning and feedback. Below, we present how the co-researcher/participants responded to the question: “What are your perceptions of your principals’ management of the school’s instructional programme?”

Theme 1: Principal’s and Departmental Heads’ Content Knowledge

The participants indicated that, although principals conducted and facilitated many class visits for mathematics, they were not always familiar with the content that was being evaluated. The participants from the primary school were not overly concerned about their principal’s mathematics knowledge level.

This is understandable because most primary school teachers can manage primary school mathematics content. However, high school mathematics teachers should be specialists in their field. Hence, not all teachers or principals in a high school may be familiar with the level of mathematics content for high school level.

Ntuthu, a teacher in high school mathematical literacy and mathematics, said:

The principal often delegates the responsibility of visiting the classrooms to DHs because he may not always have the time nor the mathematics content knowledge to conduct effective class visits for mathematics lessons.

Additionally, Sandi, another high school mathematics teacher, said:

This (the delegation of work) is not surprising because principals are often overloaded with work and cannot do an honest job. The same applies to department heads.

From the primary schools, Ganu argued:

While the issue of mathematics content knowledge may be a factor at high school level, this is not the case at primary school level since almost all teachers are able to teach all subjects at primary school.

Theme 2: Principal–Parent Collaboration

The collaboration between the school principal and parents left much to be desired, according to the mathematics teachers in the focus group discussions. They raised concerns about the fact that parents were not able to help their children with mathematics homework because they found mathematics challenging. Hence, many learners failed to submit their homework. The primary school teachers argued that they had decided not to give their learners homework because of this.

Ganu stated in frustration:

The parents do not help their children with their homework. I used to give the learners two homeworks per week, but the homework is not done. What do we do as teachers then since this work has to be done at home? I've decided not to give them any homework at all. What is the point?

In the same vein, Faxi said:

We don't give them any homework. What I do instead, is to do the so-called homework with them at school before they go home. If I don't, it won't be done.

Another possible reason why learners did not do their homework, according to the co-researchers, is that most parents are young adults, and the children do not necessarily come from families where the parents live together. This, combined with the impoverished backgrounds of the families, results in learners' poor mathematics performance. The involvement of parents in ensuring adequate learner discipline in the school was another concern raised by the teachers in relation to principal–parent collaboration.

Ganu said:

You see, the parents of these primary school children are still very young. In fact, still children themselves in a way. They come from an impoverished background—some of them may not even be educated.

Faxi added:

Only the promising learners will do the homework, while the ones who are struggling are the ones who won't do the homework.

In the same vein, Sandi said:

The massive discipline problems in which the principals had to intervene in the current study, kept the principals occupied for most of the school year. The time left for instructional leadership in the participating Quintiles 1–3 schools is thus minimal.

Busi argued:

The principal has a lot to focus on in the school. The fact that our school is in an impoverished part of the Metro, means that the children will bring all their social problems from their home and communities to the school.

Theme 3: Principal–Teacher–DH Collaboration

According to all the teachers interviewed, the principals had a good relationship with their teachers at an administrative level. The teachers agreed that the principals tried their best to perform their leadership and management responsibilities under challenging circumstances:

The principal of our school always tries his best to deliver under very trying circumstances. Despite all these efforts from the principal, however, the failure rate in mathematics continues to rise. (Faxi)

Sometimes the whole class fails during tests. DHs also try their best to support us, but this does not seem to yield any positive results. The principal sometimes calls us individually to encourage us. Recently he gave me a maths book to read so that I could learn about new teaching strategies. This shows that he is concerned about the progress of the learners as well as teacher wellness because this situation can be very discouraging. Often, he reads the values of the school to us so that we can try to impart those to our learners. (Ganu)

When the Department of Basic Education conducts its mathematics assessment of the Grade 3s and Grade 6s, the principals try to motivate the learners too. (Busi)

The DBE conducts class visits with the mathematics teachers from time to time. The DBE conducts class visits once every three months. (Sandi)

We have no problem with the officials' mathematics knowledge. (Ntuthu)

I do not see department officials' mathematics knowledge as a major issue—unlike when the principals and DHs conducted assessments. (Faxi)

The co-researchers pointed out that most principals focused their leadership on school administration and management, not on student learning. However, principals might feel that it is not their job to lead in instruction-related areas, or they did not know how.

Theme 4: Communication of School Goals

Even though the school goals were put up on the wall of the principal's office and staff room, there was insufficient communication of the goals to learners and teachers by the principal or SMT members. The average learner or teacher did not fully understand the school's mission in both schools where the co-researchers were based. This was due to insufficient communication of the school mission. This is what the co-researchers said:

We do have the vision and mission statement in our school. In fact, now and again the principal reads the values of the school to us. Teachers discuss these values with the learners of the school in their classrooms. (Faxi)

Yes, we do have a mission statement for the school. As to whether it is sufficiently communicated is debateable. (Ntuthu)

An interesting response from Ganu was:

School goals are good for learners. However, to change learners' behaviour, teachers must lead by example. Teachers should model the behaviour they expect their learners to imitate. In the words of Mahatma Gandhi: "Be the change you want to see."

Sandi responded, saying:

Let me tell you something. You can have as many rules and values as you like, not much will be achieved if you don't teach your learners by example. What is the point of telling your learners to be punctual when you don't start the lesson in time or tell them to show respect to their elders when you don't respect your learners in the first place?

Sandi obviously practised what she preached. She was highly respected in the school by both teachers and learners, and obtained good marks in mathematics. She often got 100% participation in her class, knew all her learners by name, and most of her learners pass mathematics with a good mark.

Theme 5: Professional Development and Incentives

Principals encouraged their mathematics teachers to participate in mathematics workshops in both schools. An example of such a workshop is the Tinarha Mathematics Leadership Project, organised by Nelson Mandela University. The project involved learning mathematics content along with leadership skills that principals could apply in their schools. The assumption was that leadership, especially instructional leadership, had implications for the effectiveness of teaching and learning in the classroom. The principals of both schools offered incentives for teachers who attended mathematics workshops. In one of the schools, all teachers attending the workshops received R100 per day for as long as the mathematics workshop lasted. The principal in the high school also offered incentives to teachers who gave early morning and afternoon classes. However, safety and transport issues made it difficult for the primary school teachers to organise similar activities:

The DBE officials sometimes organise mathematics workshops for us. This is the only time that we, as teachers, get some valuable feedback for our subject. The feedback provided is more in-depth than that provided in our schools. This is however done once per term. More feedback of this nature would be appreciated if it were done more frequently. (Sandi)

The principal does offer us incentives if we go the extra mile. For example, teachers who teach on weekends receive a R100 per day for their effort. (Ntuthu)

What I do personally in my grade class is to give incentives to those learners who get a 100% pass mark in mathematics, the most highly improved learner in my class, and those who excel get prizes from the school during the prize-giving ceremony at the end of the year. (Sandi)

One of the co-researchers offered his learners a R50 prize for obtaining a 100% pass in a mathematics test. The two schools presented awards to both teachers and learners for the best-improved marks and those who obtained the highest marks in mathematics in the final exam.

Theme 6: Supervision of Learning and Feedback

The principals in the schools studied did not always conduct class visits themselves; instead, they delegated this responsibility to other members of the SMT, such as DHs. This was because these principals had numerous school management responsibilities, which could be overwhelming. Issues of discipline, or lack thereof, took up much of their time. Most of the time, the delegated school officials had no expertise in mathematics. Hence:

This is often a box-ticking exercise. Often, the feedback provided does not concern mathematics content knowledge but mere administrative matters. As a result of not having sufficient content knowledge, DHs cannot provide practical feedback during class visits. Moreover, the massive workload of both the principals and the DHs can prevent a potentially beneficial encounter from becoming a reality. (Ganu)

The other co-researchers agreed that there was too much emphasis on preparing files and record keeping at the expense of actual mathematics content knowledge during teacher supervision:

We are mainly taught to keep records of our work during supervision of work. However, subject advisors do take it a step further when they deal with common mistakes and when they show us how to do corrections. (Faxi)

They just want to see the scheme of work and learner registers! It is all administrative things that they focus on. (Busi)

I think they do the classroom inspection just to show that they have done something. It is not a meaningful exercise for us as teachers. (Ntuthu)

Discussion and Recommendations

The study findings are now discussed in accordance with the instructional leadership functions contained in the PIMRS. Even though each participating school in the study had a mission, the principal did not communicate it. Hallinger and Murphy (1986) proposed developing a few coordinated school-wide objectives, each with a manageable scope. This approach would make coordinating goals easy to manage and facilitate effective communication of a school's mission. According to Hallinger and Murphy, staff input is critical for setting goals. This was one area in the participating schools that left much room for improvement. School goals must be set in such a way that they can be easily turned into classroom objectives (Hallinger & Murphy, 1986).

The co-researchers also recommend that principals, deputy principals, DHs, teachers, and parents should develop clear, easy-to-follow goals associated with learner performance. This could be included as an item on the agenda of the parent-teacher meetings during the year. It is equally essential that learners get involved in decision-making processes. This could be done through learner representative councils or other relevant structures. Buy-in from learners, teachers, parents, and SMTs is essential.

Supervising and evaluating instruction by observing teachers and their learners in the classroom is an important instructional leadership function, and such classroom observations may be informal but can be highly effective (Hallinger & Murphy, 1986). Thus, even though principals may not have the mathematics content knowledge, they could still influence learners' performance by showing interest in the learners' and teachers' progress. Therefore, the co-researchers recommend that principals continue visiting classrooms for formal and informal supervision. The co-researchers argued that principals could monitor learner progress using various strategies such as looking at samples of learner classwork books and other schoolwork, monitoring learners' class and end-of-term marks, and attending learners' schoolwork presentations. This could help principals make recommendations and propose adjustments based on learner progress. Frequent monitoring of learners' and teachers' work and providing feedback, according to Hallinger and Murphy (1986), can reinforce teacher accountability and lead to improved learner progress.

The co-researchers talked extensively about the importance of a positive school climate for instructional programmes. These ranged from providing incentives to teachers and learners for good performance, to contributing to the professional development of teachers. It became clear from the discussions that a positive school climate wasn't easily achievable in schools with learners from dysfunctional families, poor economic backgrounds, and disciplinary problems. Based on the results of this study, it can be argued that the socioeconomic context of a school affects the instructional leadership of its principal. Thus, strategies

aimed at addressing school contexts to improve instructional programmes in the second cycle of this study could be effective for enhancing the principals' leadership and the schools' mathematics academic projects.

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