

Multicultural Education

Research Article

Homepage: www.MC-caddogap.com**LEARNING TO LEARN, RELEARN AND UNLEARN: TEACHER NARRATIVES ON LEADING LEARNING FOR 4IR****Latoya Satisfaction Njokwe****Kathija Yassim****Chinaza Uleanya***Department of Educational Leadership and Management University of Johannesburg, South Africa***ABSTRACT**

Teachers are rarely identified as leaders even though they engage in significant leadership activities. While there is no consensus on how teacher leadership is defined, their leadership of learning is not contested. Meanwhile, the need for innovative praxis in a 4IR context places the leadership of teachers at the heart of transformation. Hence, this study sought to explore the ways in which innovative teacher narratives demonstrate their leadership of learning in the 4IR. Qualitative research approach was adopted for this study, using the narratives of the lived experiences of four purposefully sampled teachers. Interviews, observations, and document analysis were used for data collection. Through a process of narrative resonance, themes were extracted to create a core narrative. The findings of the study show that as leaders of learning, participants displayed strong pedagogical and subject expertise, they possessed the ability to create innovative learning environments and displayed a lifelong learning orientation. Meanwhile, self-directed and action learning provided them with tools to expand their leadership roles towards digital and collaborative leadership in an effort to enhance learning outcomes. The study though limited based on the number of participants, however, recommends among others, the need to recognise, encourage and promote teacher leadership.

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1. INTRODUCTION

Those who work exclusively in classrooms, are rarely identified by themselves or others as leaders. The leadership title is often attached to positional categories like, principal, deputy principal and Head of Department (HoD). However, Grant (2019, p.37) concedes that, “the notion of singular leadership practiced by the principal has been challenged and a more expansive approach to leadership which includes teacher leadership has now been accepted.”

Nadelson, Booher and Turley (2020) posit that teachers display, essential attributes of leader identity like: self-regulation, self-efficacy, self-determination, resilience, and persistence. Like other identities, self-identification as a leader is influenced by context, experience, and expectations. In addition, teachers generally perceive themselves as leaders only when asked to adopt that position formally. In other words, they struggle to recognise themselves as leaders of learning. The literature suggests two opinions on the matter, one where teaching and leading are mutually exclusive and the other where teacher leaders are both considered to be both teachers and leaders. York-Barr and Duke (2004, p. 267) identify teacher leaders are those with “significant teaching experience, who are known to be excellent teachers and who are respected by their peers.” Conversely, Schott, Van Roekel and Tummers (2020) summarised teacher leadership is a “relational process geared towards

influencing others and contributing to the ultimate goal of improved learning.” While teachers have been generally referred to as pedagogical and/or curriculum leaders, that pandemic bore witness that their leadership role can extend beyond the classroom in an expanded role that envisages an alternative future for schools (Grant, 2019, p.38). In this regard young, early career teachers offer leadership that need consideration since it is the kind that matters for 4IR. Also, the Transforming Education Summit (UN, n.d) identified six calls to action to address the learning crisis post the pandemic. All calls to action confirm that teachers are at the heart of leading the transformation project.

The Fourth Industrial Revolution (4IR)

Klaus Schwab (2016) warns that the Fourth Industrial Revolution (4IR) is evolving exponentially and at a scale, scope and complexity that demands radical transformation in all aspects of human life. He claims that it is not only changing the “what” and “how” of doing things but also “who” we are as human beings (Schwab, 2016). Thus, as human beings evolve to embrace new technological advancements, a radical transformation of learning is imminent. This reality points to a learning revolution that can only be achieved if recognition is given to teachers as leaders of learning. With the hard Covid-19 lockdown offering a global experiment on how teachers lead learning under precarious conditions, the innovative and initiative-taking observed from teachers needs attention. Research by Wenner and Campbell (2017) shows that there are teachers who have been known to lead learning under difficult circumstances through improvisation, creativity, collaboration, and the willingness to use any technology tools available to them and their learners. These findings are pertinent for developing countries like South Africa where education where poverty, inequality and the digital divide makes innovation an additional challenge for teachers.

Additionally, in South Africa, diversity in classrooms means that different children are socialized within different cultural and contextual realities. South Africa has one of the highest inequality rates in the world (STATSA, 2022). Educational attainment and years of schooling are the two main drivers of poverty. On average, black African children score lower on tests, and in adolescence, many fail or drop out of school. The school drop-out rate in South Africa is high (STATSA, 2020). Meanwhile, the imbalance in equity requires differentiated education rather than a one-size-fits-all approach that currently exists in South Africa.

Based on the foregoing, the research questions that guide this study are: What teacher learning experiences contribute to innovative teacher praxis? What kinds of teacher pedagogical innovations support innovative praxis?

Transformational Leadership in Classrooms

Burns (1978, p.259) coined the term “transformational leadership” to define a process where leaders and followers work together to advance co-created change. This could be related to teachers as leaders in classroom settings. In this regard, teachers generally identify the need for change, they create a vision to guide the required change and they implement change in order to improve learning outcomes. Pounder (2014, p.273) show that positive outcomes in terms of developing learner capabilities to use ideas and information, engage in critical thinking and problem-solving. He also found that when transformational leadership is exhibited by teachers, there is a positive correlation to learner performance and in energizing learners towards transcending self-interest, and embracing change (Pounder, 2014, p.280). Learners feel positive about their classroom environment when teachers display transformative leadership in that the individualised consideration enables cooperative and trusting relationships. These are teachers who provide regular support, encourage reflection, are highly motivational and effective disciplinarians focused on cultivating responsible learners. Learners feel empowered as their contributions are valued resulting in a positive internal state. Research has shown that improved internal states leads to improved performance and achievement. These are teachers willing to work towards improving teaching approaches that support learner efficacy directly impacting achievement.

Exploring a transformative leadership style amongst teachers is necessary for 4IR as it supports innovation and engages with constant change. In this regard transformational leaders are inspirational, visionary, confident in what they know and yet not afraid to learn the things they do not know. They have a heightened awareness on society’s well-being and the learning environment. They infuse a sense of direction, purpose and meaning. They are positive role models who strive for personal and professional excellence. In recent times, the #TransformingEducation is a popularised hashtag suggesting the school transformation cannot happen without the direct involvement of teachers. As transformational leaders of learning they best understanding the changes needed for 4IR inclusion in the classrooms in which they teach.

2. RESEARCH METHODOLOGY

Qualitative approach which comprises five approaches, namely, case study, ethnography, grounded theory, narrative inquiry, and phenomenology was employed in this study. Narrative inquiry was chosen for the purposes of this study as “it involves inquiry directed at human experience exposing the researcher to the identities of participants,” (Butina, 2015, p.191). Storytelling of teacher leadership narratives is a significant methodology for human research. A narrative approach to the qualitative design is adopted to draw, from teachers own experiences of learning that leads to innovative praxis. The focus of narrative research is to “construct inquiry into narratives about identity” (Cosier, 2011, p. 43). The narrative therefore enables insights into teachers’ transformational learning as leaders of learning for a 4IR world. Thus, this study which is a qualitative research uses narrative research approach as its strategy of inquiry. It enabled the collection of data in a natural setting allowing an interpretation of participants experiences. As a strategy of inquiry, it aims at understating the outcome of interpretation rather than explanations by providing access to the personal experiences of the participant (the storyteller). The storyteller speaks and declares life as experiences in a narrative form that is called story. In this regard the research paradigm offered by narrative inquiry adopts a post modernistic and hermeneutical approach to research.

Sampling

Purposeful sampling was employed “to gain deeper insights about the research questions of this study based on participant possession of the particular characteristics that were being sought,” (Cohen, et. al. 2007, p. 115). The sample comprised four purposefully selected teachers. The teachers were selected based on their recognition for the area of leadership of learning in a public-school setting. These are young early career teachers who either won a National Award, or they were recognised in the media as “can-do” teachers. A much older retired and very innovative teacher whom the media has labelled “technogranny” agreed to participate in this study, however, data collection was problematic as she teaches technology to learners of her community in out of school programmes that she hosts. Her contributions and conversations throughout this study is acknowledged and appreciated, however the data collected is not included as part of this study.

The biographical data of four participants who consented to participate in this study is provided in Table 1 below.

Table 1: Biographical details of research participants

Participant	Gender & Age	Highest Academic Qualification	Subject Specialisation	Teaching Experience
Themba - Winner of the DBE National award and founder of an NGO	Male - 28 years	MEd.	Maths Physics	5 years in a low Limpopo quintile High School
Prince - Media coverage high performance	Male - 28 years	BEd.	Isizulu HL English FAL Social Sciences	5 years in a low quintile Gauteng Primary School
Lerato – Winner of the DBE National awards	Female - 29 years	BEd.	English Language, Sepedi Language, Mathematics Life Skills	6 years in a low quintile Limpopo Primary School
Precious – Runs a TV education program for the SABC besides teaching.	Female - 28 years	MEd.	Mathematics Physical Science Sciences	3 years in a low Quintile Mpumalanga High School

Table 1 shows that all participants in this study are early to mid-career teachers with two that have already attained postgraduate qualifications. All participants were black teachers teaching in low quintile schools. There was only one teacher from a primary school, the other participants were high school teachers. These are teachers recognised as innovative as they either won teaching awards or were recognised by the media for their outstanding contributions. In the case of one participant (Precious), she was invited to run television programmes for matric learners in Physics demonstrating that she offers valuable insights into teaching and learning innovations for a 4IR world.

All of the participants in this study were further recognised for outstanding contributions outside of the classroom as they in various capacities offered learners and parents in rural communities' additional support. For example, one participant (Themba) founded an NGO (see Table 1) which works actively to assist vulnerable learners with career development and motivation to complete their education.

Table 2: Document log of material analyzed

Participant	Document Log
Themba	<ul style="list-style-type: none"> - CV - Teaching Portfolio - Reflection Journal - Official Letters and Correspondence - Official Emails - Conference invitations - Guest speaker invitations - Lesson plans - Letters from learners and parents - Letters of Commendation - Invitations to run workshops - Workshop materials - Minutes of meetings - Social Media Postings (Facebook, Instagram and Twitter)
Prince	<ul style="list-style-type: none"> - CV - Reflection journal - Lesson plans - Strategic planning documents - Teacher development documents - Letters of invitation and commendation - Newspaper articles - Social media postings (Facebook)
Lerato	<ul style="list-style-type: none"> - CV - Teaching Portfolio - Reflection Journal - Correspondence from school leaders - Letters from parents and colleagues - Lesson plans - Assignments from additional courses taken for PD - Social media postings (Facebook) - Minutes of meetings (chairperson of ICT committee)
Precious	<ul style="list-style-type: none"> - CV - Reflection Journal - Lesson plans - Workshop invitations - Letters of Commendation - Letters/Emails from parents and learners - TV presentation correspondence - Materials developed (script and resource acquisition) for TV presentations - Social media postings (Facebook and Instagram)

While the documents offered written and digital confirmation of teacher leadership, unstructured observations were conducted as part of data gathering process for the purpose of this study.

Observation

Observation is an important research tool in narrative inquiry in that it plays a vital role in helping to understand and interpret the social, cultural, and economic environment of teachers who participated in this study. Observation entailed the use of senses to collect data from the external environment. For the purposes of this study the research began with observation and was a continuous process over six months in which the researcher was as non-participant observer. The longer duration allocated to observation related to:

- A trust relationship developing between researcher and each participant.
- Familiarity with the researcher's presence in context so that the routine of teaching, learning and other teacher leadership activities were not staged, but natural and unobtrusive.
- A time frame for multiple opportunities for stories to be told without there being a formal request for a story.
- An opportunity for participants to engage with data analysis as the data collection process continued over a period of a year.

Extensive observation notes were kept in a research journal and a collection of photos were taken with participant permission. The photographs are not shared in this research study as participant identity is protected but was used in researcher reflection or in conversations with participants as the study unfolded. All observations were unstructured; hence no observation schedule was created. The reason for this approach to observation was so that data could be obtained from a naturalistic setting and not contrived in relation to the research questions of this study. Participants however were provided an opportunity to review observation data that forms part of the findings and discussion of this study.

While document analysis and observations offered unstructured insights into the natural setting of participants. Semi-structured interviews were conducted with each participant to ascertain their views in relation to the main and sub-research questions for this study.

Unstructured Narrative Interviews

Unstructured interviews allow participants to tell their own stories in their own words so that the story elicited is one that provides "rich, detailed material that is used in qualitative analysis." Its objective is to find out the kind of things that are happening rather than to find out the frequency of predetermined kinds of things that the researcher wishes to know. In the case of this study a prompt was used to guide participants towards a story that reflects on the research focus of this study.

The prompt used was as follows:

As a teacher recognised for your leadership of learning and innovative praxis, share with me your teaching story. As you share think about:

- Your learning journey (what were the things you had to learn, unlearn and relearn) and how did that impact your leadership of learning,
- Your innovative praxis in terms of your experiences of teaching and learning for 4IR that has allowed you to be recognised as an excellent teacher. Give some examples of innovative praxis that contributed to 4IR inclusion in your classroom and school.
- Share the aspects that contribute to your successes.
- Share the aspects that inform your greatest challenges.

The interviews took place in a seminar room at a mutually agreed upon date and time where after sharing the prompt both verbally and visually, the researcher listened, asked incisive questions, and probed where necessary for more information. The interviews were audio-recorded and transcribed. Transcriptions were

provided to each participant before a narrative was created as part of re-storying (see the seven characteristics of narrative inquiry adhered to by this study).

The narratives incorporated a temporality, a social context, events of relevance as shared by participants brought together to make a coherent story.

Data Analysis

A hybrid inductive and deductive method of narrative analysis was employed. The first level of coding was inductive because it allowed for coding larger blocks of text. Narrative analysis differs from other methods of qualitative analysis in that it attempts to keep the individual's narrative intact. In general coding methods require the "split up" of interview and other data into smaller segments that comprise main and subthemes. Narrative analysis treats a complete story as an individual piece of datum. Hence, in an inductive narrative analysis coding of large blocks of text in each participant's story is coded. This section of text is called a narrative block. The second level of coding was deductive where the narrative blocks were analysed using a story structure of "beginning, middle and end."

Narrative analysis, like many qualitative methods, takes a set of data like interviews and reduces it to abstract findings. The difference is that while many popular qualitative methods aim to reduce interviews to a set of core themes or findings, narrative analysis aims to reduce interviews to a set of core narratives. A core narrative is a generalized narrative grounded in your research participants' stories. This does not imply that all participant stories are perfectly encapsulated by one core narrative because outliers and nuanced differences will exist. The core narratives are explicated upon in the findings section.

The following steps derived from Riessman's (1993) guide to narrative analysis was used for this study:

Step 1 – Code narrative blocks using the inductive analysis method. Similar life events are coded across all narratives.

Step 2 – Group and read by live event whereby reading all of the narratives that were coded with the same life event code similarities and differences are noted.

Step 3 – the creation of nested story structure codes where for every life event code, nest codes based on the story structure framework are identified. These include abstract, orientation, complicating action, evaluation, resolution, coda. More specifically:

Life Event Code 1

Story Structure Code 1

Story Structure Code 2 etc.

Step 4 – Rework each block into the story structure by collating each life event by a story structure code. Similarities and differences are noted with differences further coded for later analysis.

Step 5 – Compare across story structure through switching between reading the narrative blocks as a whole and revisiting each individual story structure code. This will allow insights into how story structure codes relate across a life event.

Step 6 – Telling the core narrative where after fully exploring each narrative block a deeper understanding of how research participants' stories relate but also how they diverge. For each life event a core narrative is written which encapsulates the commonalities between participants.

Through the six steps described above the data analysed through deriving a core narrative from individual participant narratives offer insights into the questions asked in this study. Deriving the core narrative from multiple data sources enhances the trustworthiness of narrative inquiry as described in the section that follows.

Trustworthiness

Qualitative researchers rely on trustworthiness rather than replication and personal, transparent integrity rather than generalizability as indicators of a study's reliability. Guba and Lincoln (1994) recognise the following criteria for trustworthiness in relation to qualitative data. These include:

Credibility – obtained in this study through prolonged engagement, persistent observation, triangulation (of

sources, methods and supervisor member checking), participant debriefing, referential adequacy and member checks with participants.

Transferability – ensured through the use of “thick descriptions” and the isolation of narrative blocks.

Dependability – ensured through a variety of data sources used in the process of triangulation as well as a dependability audit in which the research verified research processes with her supervisor.

Confirmability – a final draft of the data and its interpretation was provided to participants as part of a confirmability audit. Participants approved re-storying from the data and confirmed narrative codes. Narrative researchers may not make claims about the generalizability of what they have learned from the stories told to them, but they enter into a relationship with both storytellers and readers to collaborate on an agreement about what those stories mean, and how they contribute to an understanding of the reality of lived experience (Marshall & Rossman, 2011).

Ethical Considerations

Ethical approval was obtained from the UJ Ethics committee, permission was sought from the principals of participating schools where teachers were observed, and documents analysed as part of this study. The participants were informed of the objectives of the study and consent was sought thereafter. The primary ethical concern for narrative research is to demonstrate respect for personal privacy, to be careful to do no harm and to be just in the distribution of benefits to all involved in the research (Marshall & Rossman, 2011). To demonstrate respect for personal privacy, all participant consent was obtained prior to the study. Written permission was obtained to observe, interview and document data. Participants were provided with the option of withdrawal from the study for any reason and at any time.

3. FINDINGS AND DISCUSSION

Table 3 presents the themes and sub-themes generated from the analyses data.

Table 3: Main and Sub-Themes within the context of narrative resonance

<p>Question 1</p> <p>What teacher learning experiences contribute to innovative teacher praxis?</p>
<p>LEARNING TO LEARN, UNLEARN AND RELEARN</p> <ul style="list-style-type: none"> - “Learning through teaching” - Self-directed and lifelong learning - Digital learning - Collaborative learning
<p>Question 2</p> <p>What kinds of teacher pedagogical innovations support innovative praxis?</p>
<p>PEDAGOGICAL INNOVATIONS</p> <ul style="list-style-type: none"> - Redesigning the classroom - Problem creation - Third space learning - Bringing the classroom into the world and the world into the classroom

Theme 1: LEARNING TO LEARN, UNLEARN AND RELEARN

Sub-theme 1: Learning through teaching

Since teaching had been “a calling” for all participants in this study, their natural affinity for it was evident throughout the study. Themba made a significant statement when he said, “I learn when I teach. These learners are smart and knowledgeable. We don’t see them as knowledge-producers because we have the old mentality of filling their heads with knowledge.” Themba’s appreciation for the things his learners have expertise in is shared by Lerato who also felt that “we don’t take notice of how learners learn naturally...yes, we know some things from being trained as a teacher, but each child learns differently. For me observing them gives me insight. I learn how they learn.”

The on-going action learning that participants mentioned being equipped with at university seems to be supporting their learning through teaching learners. Increasingly learners are likely to have natural skills that will require consideration. One has to just consider Gen X, Gen Z and these days Gen Alpha. Teachers will have to prepare for this through “adaptive expertise”, through “reading the class” and through “knowing how they learn.” Such preparation for the future classroom cannot be pre-empted, hence the skills that Themba and Lerato were exuding needs specific mention. While all participants were learner focused, the inclusion of learner expertise in learning engagements differed. Precious to some extent enabled learners by allowing them to problem create, while at the same time including in their learning engagements and encounters with African experts, she was not engaged with them as “observer” and “enabler” compared to Themba and Lerato. Prince on the other hand worked for learners by engaging a team of teachers that collaborate on what solutions could be found to the literacy issues that plagued learners. Interventions were provided for learners, and through those interventions their creative outputs were used to support the learning of younger learners. Prince comments, that they “got learners to create their own material...so we took creative writing exercises got them to develop short stories which they shared with younger learners... each one teaches one philosophy you know.”

The place of learning through teaching and teaching through learning meant that all participants were reflective practitioners. Themba was particularly creative where he recorded voice notes as reflections and grappled with his observations through having “conversations with myself.” Lerato had the practice of being unobtrusive in a classroom where routines were placed that enabled learners to engage with learning in small groups while others worked with Lerato individually. “I’m a child at heart, that’s why learning through play is powerful for me...I want my learners to love coming to school...to see it as a play date.” Lerato’s notes are both written and electronic. She observation and conversation notes for each child and for groups of children that she feels learn in similar ways. Another finding that makes Lerato stand apart is that she designs her learning materials and assessments with how her learners learn in that “I don’t create materials like one-size-fits all. It’s personalised for small groups because some are visual, some are kinaesthetic learners and others are cognitive. They also learn at their own pace...and I accommodate that. I believe in depth learning rather than breadth learning.” “There is that notion that university education cannot prepare you alone, that experience counts. Believe me I have learned more from being a teacher than from learning how to be a teacher,” Lerato further reflects.

These comments and observation point towards “on-the-job” learning that is vital for how teachers choose what kind of professional development they require. While formal opportunities are provided, all participants engaged with self-directed learning. They personalised their needs for learning by seeking out their own opportunities for learning. This contribute to what is required for a 4IR world, namely the capacity for both self-directed and lifelong learning.

Sub-theme 2: Self-Directed and Lifelong Learning

All participants displayed on-going engagement with learning. Much of their own professional development was self-selected as opportunities presented itself online for free. Themba spoke of attending webinars and learning from conferences that he attended online. He shared:

“I always make time for the various PD offerings online. If it’s something that will improve my practice or expose me to new ideas, I go for it. Online access has made that possible. It only requires data and good connectivity. It’s not like before where we were limited to what the department offered. I like that I can choose where I spend my time learning...and also if I can’t attend at the time the organisers send the recording. This has made a difference to my learning.”

Personalising learning and allowing teachers to choose the things that make a difference to them seems to

be the way most of the participants preferred to learn. For example, Prince was able to connect to colleagues who successfully ran reading programs globally because of online access. “Online allows you to see what others are doing...the video clips show you the real thing,” he said as he shared how he designed his reading program.

Sharing their pedagogical experiments online was another mode of learning for participants. Precious created TikTok videos which allowed her to develop a personalised approach to teaching online. She mentioned, “the TikTok videos became so useful for me as I got a better sense of what students wanted...where they were struggling...the kind of topics they needed assistance with.” Using subscriber comments, she was able to refine her teaching approach. Lerato and Prince shared many aspects of their work on the school and their own Facebook pages. This drew to them an interested group of fellow teachers who learned from them and from whom they were learning. Lerato spoke of a specific teacher whose work she follows and who has given her a number of insights into how to teach young learners. “These days we post the things we do because we get immediate feedback...and often colleagues will use your work, and you are free to use their material. It’s an active learning space, and where good ideas are shared.”

Connecting to experts and to the latest happenings in education also happen online. Themba mentioned “I found this group of techie teachers who I really respect because they know their stuff. You can post something and there is immediate guidance.” Themba is contributing to a book that the group is writing about how to use technology in education. His self-directed learning is motivated by the need to teach learners in ways that are commensurate with 21st century development and with his interest in the use of technology for teaching and learning.

To role-model learning meant that participants had to engage with their subject area on an on-going basis. Interestingly the strong connection with the university seemed to have also stimulated on-going learning. Themba and Precious had both opted to complete their Masters degree for example. In reviewing their dissertations, it is clear that they were researching pedagogical practices and technology inclusion as this is what interested them. Having the additional qualifications also seemed to give them some additional authority as teachers. They participated in conferences and were invited into research spaces that other teachers may not necessarily have access to.

Participants embraced continued knowledge and skills development while demonstrating continued growth in their careers to enhance lifelong learning. They all shared the same sentiments on how attending training or workshops made it useful to improve the quality of teaching and learning. Participants discovered ways to sustain their classroom management using technological tools. In this study, Prince mentions, “I attended these voluntary workshops on Saturdays to stay abreast of the new developments in teaching literacies.” Lerato added that the parent support workshops she attended was very helpful in how to extend partnerships with parents so that they can support their children’s learning at home. While nuanced self-directed learning was evident, and the on-going engagement with learning was something all participants engaged with on their own volition, digital learning was key as they all recognised it as “learning of the future.”

Sub-theme 3: Digital Learning

The comfort with using technology was evident in the teaching practices of all participants. Themba in particular drove the digital agenda to the point that he was questioning school policies that restricted the use of technology. Since technology development was constant and the pandemic offered insights into how important it was to embrace it, the digital divide required teachers to be innovative. This was one area that all participants actively engaged. They all felt the need to “use whatever gadgets was available.” The DBE had supported schools with internet connectivity and all participants were at schools where the internet was available. This helped them to explore digital learning as a resource. Observations showed that participants rarely taught their classes in traditional ways. Active use of technology no matter how limited, seemed to be a constant feature of their praxis.

All participants confirm that their exposure to technology and their own learning experiences using technology at university convinced them that it was something they has to include in their teaching. Themba was adept as “designing his own cell-phone based learning platform,” and he attended instructor workshops on coding and robotics that contributed to him developing a “free short learning programme for teachers.” These workshops that he runs supports teachers to use Scratch Coding with learners.

His own classes were benefitting from his advanced skills in digital technologies.

Prince mentions using “cell-phones for learning as it is something all learners have access to at my school.”

Participants previous learning experiences using mobile devices enforced a desire and willingness to change how learning takes place. The impact of mobile computing requires full participation from a teacher to engage learners in digital content for learning. Often participants used their own devices to engage learners in technology-rich activities that personalize their learning experiences. Lerato who teaches Grade 2 learners uses her person devices to support learning. “Learners share my phone or laptop and I often use it as a reward too...there is a difference in their engagement with learning. My learners as young as they enjoy learning with technology.” This finding corroborates the work of Winter, Costello, O’Brien and Hickey (2021) who state that effective use of social medial platforms such as YouTube, can change classroom practices to help learners if teachers are willing to adapt and shift to using technology.

Themba and Precious were both active with learners on social media platforms where they connected to individual learners. “My learners know they can connect with me on WhatsApp. We have a group and if someone asks a question classmates respond if they can. I only come in when I see that the thinking is going in the wrong direction. Then too I guide them...not giving them answers but being there when they need a slight push.” The TikTok videos that Precious produces weekly offer learners reinforcement. “It helps my learners but their friends to revise. Over Covid the number of subscribers grew exponentially, and learners found the byte size learning helpful.” From the conversations with participants the need for interactive access to learning is as important as self-directed learning.

Lerato commented on how games were a particular attraction for her learners, so she downloaded a number of educational games which she has given to her learners to play on her phone.

“They surround me and want to see the laptops and ask mam do you have games in your phone so instead of giving them any other game I thought let me give them games where they could learn and play so I downloaded the educational games. If I am teaming them 1 2 3 and they are still struggling with some aspect of learning. I find a game, download it and see what they would do on the game.”

For Lerato’s Grade 2 learners their visible enjoyment and concentrated engagement with technology has extended into better learning outcomes. They are keen to play with one another and seem to require less assistance with mastering the game. The unintended consequence has been better mastery of numeracy skills in particular. While individual participants have taken a number of opportunities to develop their pedagogical approaches with including digital literacies they are also seen as resources to their peers. All participants are recognised as both subject and digital experts amongst their peers and school leaders. In this regard they have also become informally teacher educators. Peers consult with them, and their superiors make requests for them to support others.

Sub-theme 4: Collaborative Learning

“Sharing is caring...” is the motto of Lerato as she encourages her learners to help each other. However, this motto also extends towards fellow teachers who draw on her expertise on a frequent basis. Lerato has also had sessions with groups of teachers at her home over the weekends. She feels that whatever she has learned must be shared. These informal ‘workshops’ are voluntary, and they are a means of building community where most teachers in her phase require support with “overcrowded classrooms”, “differentiating teaching and learning”, “supporting weak learners” and “dealing with social and emotional challenges that learners are affected by.” In addition, a lot of teacher administration can be done digitally. This is another area were Lerato is called upon to support her peers.

Prince also engages with a community of practice that began as a book club. The use of digital tools allowed them to “see where learners were struggling.” An analysis of learner performance and some collaborative brainstorming has assisted his learning community propel into action a plan that will improve learner outcomes. Prince’s approach to collaborative learning is different to his peers. While the other participants are called upon as “experts” or as “star teachers”, Prince uses a participatory approach of “sharing the problem and solving it together.” His motto “teamwork is dreamwork” offers collaboration of a different nature. His people skills offer an invitation to “own the problem, so we are working at common purpose.” This means that he is able to influence and empower other in ways that allow collaborative problem solving.

Themba collaborates with anyone that reaches out to him. His early experiences with resistance to his ideas meant that “my door is open to anyone who wants to come in...I’m not able to force the change...but I want change to happen willingly.” Perhaps his outlet for collaborative learning has come from the NGO he founded where he is called to action but in spaces that do not restrict him. With learners, younger colleagues, and teachers from other schools together with online collaborators Themba’s strength is the network he maintains.

He is respected and recognised in these circles and his own development has expanded organically in a broader landscape as compared to other participants. His NGO is recognised for its contribution to the community and to learners, but it also serves as a platform on which Themba collaborates with others locally and globally.

Precious, much like Lerato is able to share her expertise with peers, and she creates online learning content that she freely shares. This access to her expertise is far reaching as she is able to influence both learners and fellow teachers. Her activity on television also means that she influences those learners and teachers that do not have internet access. For many reasons, the worlds in which Themba and Precious is engaging with responds to 4IR in significant ways. Their ability to extend their classroom beyond the borders of the school and classroom means that they are exploring what might be referred to as “classrooms of the future,” (Fitzgerald, 2021).

Theme 2: PEDAGOGICAL INNOVATIONS

Sub-theme 1: Redesigning the Classroom

“Working in an under-resourced school, means that you are on a shoe-string budget...all you have is what you find here, or you bring your own resources,” Themba commented. He took ownership of “the lab” as he calls his classroom because he was able to fix the broken equipment, re-design the room by moving the furniture and creating a space that worked for him and his learners. “This room was locked up...the junk room when I asked for it. I wanted my own space, not this moving around. My learners must have a place to call home,” he said. This correlation between “classroom and home” came up often in all participant conversations. They all felt the need to make the classroom a place where learners “felt at home.” In Themba’s case it was also where he retreated to when things got difficult for him at the school. Lerato shares Themba’s commitment to the fact that “space matters.” She mentions, “learners must want to be here, they must feel at home.” While Themba could fix broken equipment and get the lab up and running, Lerato had to be creative with recycling materials. At the beginning of each year, she brainstorms with learners their ideal playroom and the colours they like. Then together with her learners they paint or paper up the room, create workstations with brightly coloured tins and a rearrangement of seating areas. Learner drawings of their playroom and photos she took of the learners working on decorating the room show that it is the one activity the “builds ownership.” Lerato uses a differentiated approach, her whole group activities happen on tree stumps on the playground (she teaches large classes of 45-55 learners) and group and individual activities at learning stations.

Precious meets learners in various rooms so owning a homeroom does not mean that she teaches in the room. Her learners are already attuned to how to reorganise themselves without changing the room set up. In her classes learners are nominated by peers (per topic) to act as team leaders. Precious consults before class with team leaders providing them with directives on her vision for the topic and also consulting with them on suggestions, they might have on learning configurations. Because of this prior preparation, Precious has “little teachers” who are able to support her innovative lessons. For example, her lessons on electricity required learners to work on different self-designed experiments that responded to the question: “How can loadshedding be resolved?” Observing the series of lesson that developed from this question learners research brought a number of different solutions. Precious is able to reach all learners through the “little teachers” as they provide feedback that engages her with “on time support.”

Prince also changed his classroom into a literacy hub. He based the re-design on “I didn’t want a silent sanctuary for books, I wanted a dynamic communal space where we used reading around a fire as a concept for design.” One often saw learners sitting in circles, and he emptied the room of furniture, rather using the floors and walls as spaces of learning. Cross legged learners on cushions reading or with board cut outs that rest on their laps for writing. In moving out furniture he moved in “a learning sanctuary that was sometimes buzzing with activity and at other times a space for quiet thinking.” Prince has a “tech hub set up, and I let learners engage on their phones. We do have a rule which everyone follows including me...in here we use technology to learn.” When “trust is given learners monitor each other.”

The changes made to classroom spaces and to resources they were given including “learners as resources” were used as a creative space for innovative pedagogy. Learners were able to engage better in spaces that showed “I care about you.” In these re-designed spaces learners felt “at home” which meant that they were more likely to try out new things in those spaces. All participants did not believe that they needed to spend their personal funds on re-designing the classroom, they were committed to “being imaginative and sustainable.” Innovative learning “can only happen in innovative spaces” according to them.

Sub-theme 2: Problem Creation

The data show that Precious was deliberate about this pedagogical innovation more than other participants. She reported that:

“My father enjoyed giving me puzzles to solve...it was a game we played. But as I grew older, I started creating my own puzzles for him to solve. Somehow that process of creation made me realise that I had to be more observant of the things around me, and that I had to research this as there must be an answer too.”

Hence the idea behind problem creation is that learners observe, research and problem solve simultaneously. “Being on the other side on an assessment stimulates learners. They being to understand problems from a perspective that’s not the same as saying to them here are problems to be solved.” Her “little teachers” concept also motivated the process as teams would create problems for one another on a topic, which meant that, “they had to understand the topic, deliberate over existing problems, look at how the topic affects them in their everyday life and design a problem from all of that.” Precious also uses learner ideas (with permission) for her online and television delivery. She has expanded her content development by productively using learner engagement. She calls this “depth learning.”

In terms of problem creation, Prince uses “evidence to isolate or diagnose the problem.” He shares what he learns from learner data with his colleagues, “then they decide on the problem and ways to address it.” This pedagogical innovation in his case is being explored with peers rather than with learners. “Pinpointing the problem means looking at what is happening...where are things not working.” One day he asked learners to empty their school bags after reading about this in an article. The need for emptying the bags was to see what learners read.

“Besides textbooks we didn’t find much else...so it could mean that they were not really reading. But when I said let’s see your phones, we found the reading on there. Their google searches, their book-marked posts, the links they had downloaded...they were already reading digitally. It was the snippets of information they were in to...not novels and print material.”

This meant that the team was looking for the problem in the wrong place. Prince began to reframe the problem towards: “How can online literacy activities support improved learner outcomes?” It was this discovery that Prince used to create the school wide reading program. Problem creation requires observation and sensitivity to how the problem relates to everyday challenges. It does require engaging with the issue over time and an openness to not having immediate answers.

Redefining problems and redesigning classrooms also offer room for third space learning. These are spaces outside the home (as the primary space for learning) and school (as the secondary space for learning) and include space that is both physical and virtual.

Sub-theme 3: Third Space Learning

Since most participants (except Themba) grappled with overcrowded classrooms, they needed to be creative in using third spaces for learning. Themba converted the computer lab into a “hub” where learners could “hang out.” In having a place to spend time, learners explored technology but also “helped each other to learn.” This “organic space where learners enjoyed a less formal interaction is where they learn best.” While his formal classes grew and learners began to experience success in Physics and Mathematics, his “after classes, and after school regulars” were learners from across the school. Themba noted that the learners wanted to learn, they just didn’t have conducive spaces to do so. By allowing learners into his “lab”, by trusting them to be responsible he was teaching them life lessons. His NGO was another place where like-minded colleagues and learners came to “give back to the community.” Every holiday they “borrowed space at one of the schools” to host extra classes and host motivational talks with learners in community. His NGO is based on volunteerism and over the last three years Themba’s volunteers are welcomed across Limpopo. His NGO is currently sponsored so he has also learned how to fund raise for the outreach he does.

Lerato uses the playground, the school food garden and the park near her school as third spaces for learning. Her learners run a recycling programme where they collect bread packets, plastic bottles and paper from the community. On the playground learners work together to separate the materials, they count the items and place them in special bags for collection. She uses this opportunity “to teach them about the environment” and why we should take care of the planet. The recycling project brings in a small income which Lerato saves until the end of the year when learners decide what the money will be spent on. They have “fixed the toilets, bought play equipment like skipping ropes, balls etc. purchased two tablets and created a small garden outside

her classroom.” Each of these purchases meant that learners were able to invest back into their school and classroom while learning. Lerato also takes the learners into the school food garden where they learn science and geography but often, she takes them there to “sing and to enjoy signs of growth and life...metaphorically its what we are trying to do with the kids.” Since the school does not have enough space for exercise, every week Lerato takes learners to the nearby park to exercise and develop their physical skills.

Precious also takes learners on “observation walks in the community.” Once she was working on the topic “structures” and learners created their own structures using recycled materials after observing homes in the community. Learners redesigned “shacks so that they would be safer” as the community witnessed shack fires and some learners lived in shacks where overcrowding was an issue. “Double storied or storied shacks were their suggestions...and the science of what materials to use, how to make it not collapse etc.) made it a worthwhile project.” Precious like participants use what they have around them and by involving learners they “open their minds to making something out of nothing.”

Prince was the only participant to take third space learning to scale. By collaborating with the community library and with parents and fellow teachers he embarked on deliberate creation of “literacy spaces.” He started a program called “Mother’s Lap” where mothers and young learners came to the library to enjoy reading and writing. He also redesigned classroom spaces so that learners were drawn to reading. There were book exchanges to be found in the school and in the community. These were wooden structures that had “free books” in them. Anybody could take a book and replace what they took with another book. The kinds of reading materials included magazines, comics and anything that people enjoyed reading. He felt that “creating opportunities to read” would encourage learners to “read for pleasure.” The library helped by hosting a book drive at malls and this built a collection that could be graded according to age. Prince’s book exchanges meant that there was no shortage of books for the whole community. Apart from these efforts Prince has a website for the school where learner stories are housed. These are updated and content is refreshed so that learner creations can also be accessed by everyone in the school community. The Abantu Book Festival where Prince takes learners has a slot for his learners, and recently Jacana Media has offered to publish learner stories. These incentives have stimulated learners and the community to collectively contribute to his reading program by investing in third spaces for learning.

Apart from the local community all participants interacted with the wider global community to “bring the world into the classroom and the classroom into the world.”

Sub-theme 4: Bringing the classroom into the world and the world into the classroom

Apart from using spaces available at school and in the community, Lerato also uses online spaces by connected with a colleague from India. She met the colleague through Twitter and they both wanted learners to “visit each other.” Using WhatsApp video call, groups of learners meet each other every month, and conversations about learning are stimulated. Lerato felt, “this interaction was rich for learners, they were able to talk about the things they love about school, about their interests and about what they do every day. These simple conversations allowed South African learners to meet another culture and another way of life.” Lerato continues this collaboration as it’s something learners enjoy and appreciate, but also it “broadens their horizon” and “helps them to learn about others.”

For Precious the Science Expo was offered another space for learning. She makes effort to prepare learners for the event and there was a general enthusiasm for taking part in the expo. She says, “learners like to enter competitions, so the expo gives them a space to do so. I see the interest they take in developing these projects, and every year we do take a medal or two.” This learning environment meant that learners were “free to explore their own questions and they enjoyed the process of showcasing their learning.” During the initial rounds of the science expo “learners compete within the province, then if they make it through, they go nationally and then global.” This chance to share and learn science through project-based learning provides learners with “exposure where they test their ideas and are encouraged to be problem solvers.” Increasingly the number of girls making to national and international is growing.

Precious also explores biographies of African scientists with learners. She exposes them to a number of discoveries that are being made on the continent. Often, they write to these scientists and invite them virtually to have conversations about what they do. They once toured “NASA virtually and saw Dr Xusa testing rocket fuel.” These experiences have also created possibilities for the value of what learners are learning in the curriculum. Precious also uses science-based films like “Interstellar, Honey I Shrank the Kids, The Imitation Game, Hidden Figures etc.” to explore science concepts with learners. She has a connection with a local movie house because of her television work who runs free shows for her learners. Through her “contacts” she is able to “create learning experiences for learners.”

Prince also works hard to bring opportunities to learners. Through his association with the Abantu Book Festival and Nali Bali he is able to invite storytellers and authors to his local library. He positions these opportunities at the library because they have the space, and it benefits the whole community. Three or four times a year and especially during the festival local and international authors and poets visit their community and provide workshops for his learners and the community. Writing as healing is taking route with popular authors and poets providing spaces for exploring trauma and pain. In a community where mental health issues do not have “the luxury or medical care and psychologists are too expensive, writing as healing is a solution.”

These pedagogical innovations enable a wider circle of influence on learners and their learning. Some of the success is tangible, others are not as tangible within the context of curriculum and school performance.

4. CONCLUSIONS AND RECOMMENDATIONS

This study drew attention to teacher leadership narratives of those who willingly take initiative to transform teaching and learning. South African teachers have a huge role to play to ensure that the countries education system meets the 2030 United Nations Sustainable Development Goal number 4, which is to “ensure inclusive and quality education for all and promote lifelong learning.” The education system is undergoing vast change due to technological advancement to shape new learning. Teacher leaders should be recognised and included in developing new technologies and innovative praxis that lead the kind of learning required in this knowledge revolution. The following recommendations are made based on the findings of the study:

- Teacher leadership should be recognised, supported and encouraged. This can be done through periodic training, seminars, workshops, among others where teachers are duly sensitized.
- Well performing and deserving teachers should be recognised. This can be done through an award ceremony at the province or national levels.
- Teachers should be inducted into recognising their ability and practice of leading learning.

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6. LIMITATION

The study was limited to the lived experiences of purposefully selected teachers. Hence, the findings may not be generalised. It is therefore suggested that similar study be conducted using quantitative approach which would allow for generalization of results.

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