Improving inclusive education in public schools: Synergising the institutions

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Abstract

The study unpacks the complex nature of inclusive education and unearths a solution of multi-agency synergy. Pre-service and in-service teachers at a full service school (FSS) in South Africa demonstrate great resilience and adaptative ingenuity. The research demystifies the Education White Paper 6 of 1996, and by disentangling teaching and learning, provides an intervention for South African government post-apartheid. The ethnographic portrayal of lived experiences is shaped by a novice FSS manager/mentor who set out to conceptualise pre-service teachers' instructional support as mentees at Dukes Full Service School. The practical demands and unplanned occurrences that in-service and pre-service teachers face at FSSs are situated within the activity theory of resilience and adaptative ingenuity; the researcher has thus generated a professional toolkit that integrates skills for professional crafting of solutions. This theoretical approach facilitates the formation of a scaffolding stratagem that improves inter-curriculum management and mentor support structures of the Department of Higher Education with the Department of Basic Education. Recommendations are configured to plugs gaps in knowledge and ability for teachers-in-training at FSSs; the recommendations are aimed at deepening the reform of educational processes in institutions for positive inclusive education outcomes.

Keywords: resilience and adaptative theory, mentee, teachers-in-training, in-service, pre-service

Introduction

The researcher examines the practical symmetries of the Education White Paper 6 (EWP6) and its divergence within both the lower and higher education arms of the South African Education Ministry. This ministry, shared by the Department of Basic Education (DBE) and the Department of Higher Education and Training (DHET), is obligated to skillfully entrench the outcomes of the global homogenising principles that were adopted by South Africa to endorse the *education for all* proposals (Kern, 2021).

This research places emphasis on achieving improvements envisioned in the Millennium Development Goals (MDGs) in all aspects of education to provide quality basic education for all children, youth and adults. The focus is directed on the emerging form and function of the globalisation of education so that South Africa can be positioned as a competitive economy (Pantic & Florian, 2015).

The regulated political approach to education in post-apartheid South African and the governance of state structures has undergone a facelift from time to time. One such change has been the dividing of the DBE catering for learners from Grade R to Grade 12 and the DHET into separate entities with different ministerial bodies accountable to the president on progress on schooling in South Africa. Both of these entities fully support development projects that create new policy and execute interventions to provide spontaneous and well-thought-out advancement to transformation, equity and escalated performance in the education system (Fatar; 2017; Mzangwa, 2019).

The DHET and DBE have different focal points to enhance their functionality but to meet educational demands, it needs to be ensured that there is alignment and integration on the dual ministries. A common memorandum of understanding or medium of work is needed for employees at state schools in South Africa (Pantic & Florian, 2015). The tertiary institutes that are under the ambit of the DHET currently have differing curriculum requirements for pre-service teachers entering the teaching profession. On the one hand, the South African Council

of Educators (SACE)[4] has a minimum requirement. Thus, SACE disregards the diversity in contextual, socioeconomic, psychosocial and composition of agents within agencies needed to address the perpetuated inconsistencies that existed pre-democracy. On the other hand, the instrument to measure teacher compliance demands the incorporation of inclusive education in every state school so that diversity of learning needs and capabilities is accommodated via a differentiated curriculum. Maharaj (2019) notes how the imbalances of the past are perpetuated through the practices in state schools. The emergence of a unitary education system from 19 education departments further showed up different capacities, rules and approaches in dealing with untrained/undertrained staff in their handling of situational operational matters with the limited tools and resources at hand. It is perhaps ironic that since being aligned to the MDGs, the imbalances have become more apparent; and addressing the educational challenges and apartheid incongruencies remains a difficult balancing act.

The National Centre for Curriculum Research and Development was formally established in 1998. The centre supports the department's mission of quality lifelong learning and training for all, through several projects that will culminate in a policy framework on lifelong learning development. The Centre's research and development projects support policy formulation and implementation and contribute to a reflexive and rigorous approach to transformation, equity and increased performance in the education system. This is why the researcher believes that unity in action with multi-agencies will assist with narrowing the gap that exists between policy and practice thus enhancing transformation in education.

A contextual overview of inclusive education in pre-service educational settings

As an autoethnographic researcher and manager at a full service school (FSS) within the DBE, my foremost target is in setting new and realistic goals in driving the Curriculum and Planning System. In this research I set out to interrogate and extrapolate (from a critical constructive standpoint) organisational boundaries for the pre-service education of teachers-in-training while working in schools. As a novice manager, I aspire to fuse research and education in the

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[4] SACE- South African Council for Educators is the body responsible for the registration of teachers; the body confirms whether teachers have completed their qualification via teaching certificate or degree, manages professional development and teachers 'code of ethics.

teaching and learning domain, focusing on teaching and learning practice to support both the DBE and the DHET as the common vehicle for smooth transformation in education.

My lens is focused on a strategy to identify and examine how the basic elements of inclusive education can become the springboard to this transformation process. As an autoethnographic researcher, my goal is primarily to explore and explain how I can merge research and education to strengthen regulatory policies of both the DBE and DHET that they collaborate and network with each other interdependently (Pantic & Florian 2017; Mzangwa, 2019). The main aim of this paper is thus on the one hand to shape the inclusive knowledge of pre-service teachers as a prerequisite for entry to the teaching fraternity while on the other hand to call for FSSs to work closely together with teaching and learning institutions to equip and resource the teachers with requisite educational methodologies. The paper also highlights that there is a need to offer professional support for in-service teachers through the adoption of principles founded on the EWP6. The policy, as set out by the doyens of democracy, that introduced the practice of inclusive education as a professional capital to address the inequalities and imbalances of the past.

As a manager and a mentor, I designed the focus group deliberations of this study to include both teachers at work and teachers-in-training to obtain information on scaffolding that can be used to execute curriculum policies set out by South Africa's DBE and DHET.

This study presents the researcher being predominantly strung by research questions that navigated an exploration into what teachers at work and teachers-in-training understand and practice. Teachers-in-training do not necessarily intentionally situate themselves at an FSS for practice teaching; such schools have a particular dynamic where inclusive education is implemented in an incremental way.

Hence, in posing the research questions, the researcher set out to develop new knowledge and insight for mentees (teachers-in-training), as well as being mentored (teachers at work) based on the regulated policies. The intention was to shape practice teaching conditions in sync with FSS policies. The research questions (RQs) posed to the DHET and DBE representatives during the field testing and consultation were as follows:

- RQ1: What negotiated systematic mapping system do DHET implement with DBE to practically prepare pre-service teachers?

- RQ2: How should pre-service teachers prepare for the world of work?
- RQ3: Why must the different education sector players create a negotiated and joint approach to have common end points in their separate roles?

Research design

The study design included planning for accumulating data, and analysing the information (including facts and figures) obtained on curriculum implementation for teaching and learning by both teachers at work and teachers-in-training.

Although significant studies have been undertaken in teaching and learning about teachers-in-training and teachers at work, none to date have dealt directly with how teachers-in-training have to comply with regulated DHET to complete practical teaching at FSSs.

The researcher's unfolding of experiences as a novice manager was seated in the work of Van den Akker, Kuiper & Hameyer (2003) (see Figure 1 below) in explaining *manifestations of the curriculum*.
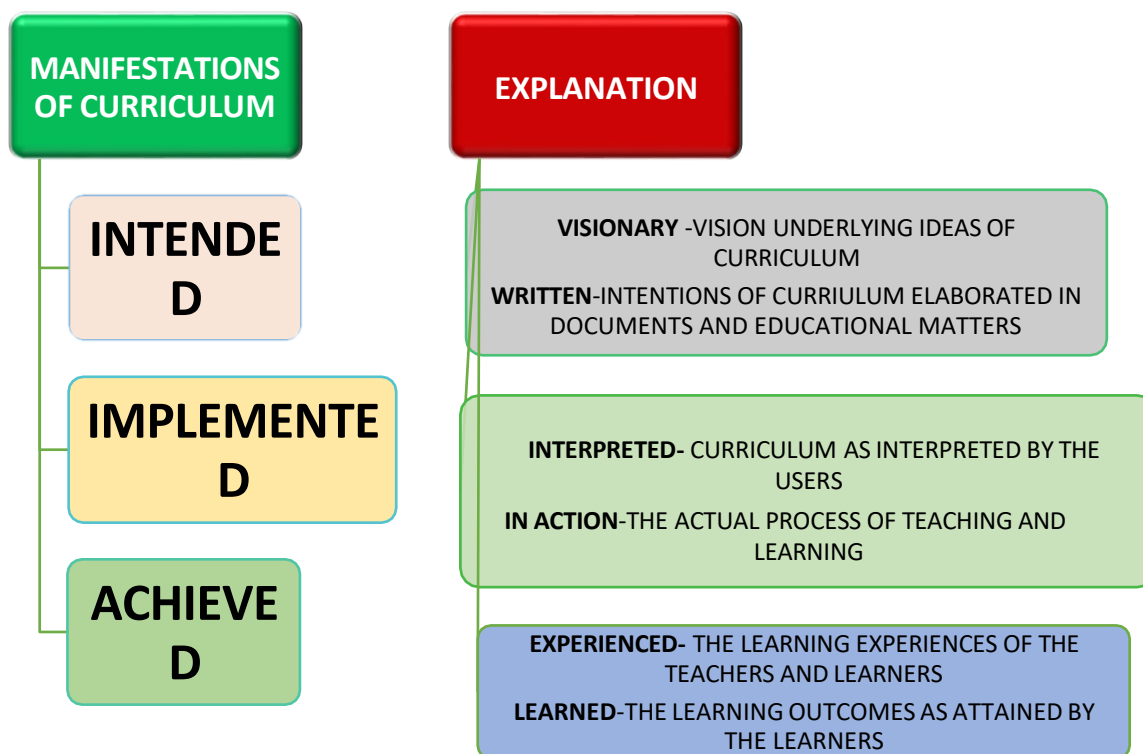
Figure 3. *shows curriculum manifestation procedures at a school. Adapted from Van den Akker et al. (2003), cited in Eggink (2019)*

Collection of data

As the schools accounting officer reporting to higher education institutions that supply teachers-in-training to schools, the researcher undertook to effectively engage with tertiary supervisors, teachers-in-training and mentor teachers at school so that the teaching and learning programme was not compromised; therefore the gathering of data did not hamper the meeting of regulatory demands.

Both teachers-in-training and teachers at work were given induction presentations about the required mentor–mentee roles in the process of mentoring. During inductions with mentees, two inadequacies were demonstrated in the teachers-in-training, and which would detract from their performance. First, there was a clear absence of adapting and dealing with inclusive education and second, a practical approach to integrated teaching and learning was lacking. It was evident that these teachers-in-training did not have a theoretical background to/understanding of the gist of the EWP6.

Hence, the collection of data became necessary to break new ground that could shed light into the complexity and diversity the deficiencies both in teachers-in-training and teachers at work in effectively executing Curriculum and Assessment Policy Statement (CAPS) policies.

Sampling

Teachers at work from Dukes Full Service School (DFSS)[5] and two teachers-in-training from three distinguished tertiary institutions[6] (that is, two teachers-in training per tertiary institution) were interviewed before and after mentees were deployed at DFSS. The information that was collated and analysed from teachers-in-training is referred to as *contributions*. The contributions from DFSS1 to DFSS6 enabled a final report to be written to fill the deficit in not having a common guiding principle that assist teachers-in-training to adapt to inclusive education. The contributions were utilised to i) design skillsets for the teachers and ii) develop an approach for multilevel agency professional collaboration to resourcefully handle differentiated learning and assessments. The outputs were aimed at becoming an instrument in the world of work for both teachers-in-training (as they start on their careers) and teachers at work (via an in-service refresher programme).

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[5] Pseudonym to protect information of mentors and mentees contributing to the study project.
[6] These institutions are recognized and meet standards of the department of Higher Education

Analysis and emerging themes

The researcher analysed the contributions to the research questions and offers findings at the end of this document that are designed to merge the intertwining educational pillars of DHET and DBE into an integrated curriculum design. This is aimed at allowing seamless adaptation when entering teaching practice sites both at primary and high schools. The manifestations of curriculum are as adapted from Van den Akker, et al. (2003) (see Figure 2).
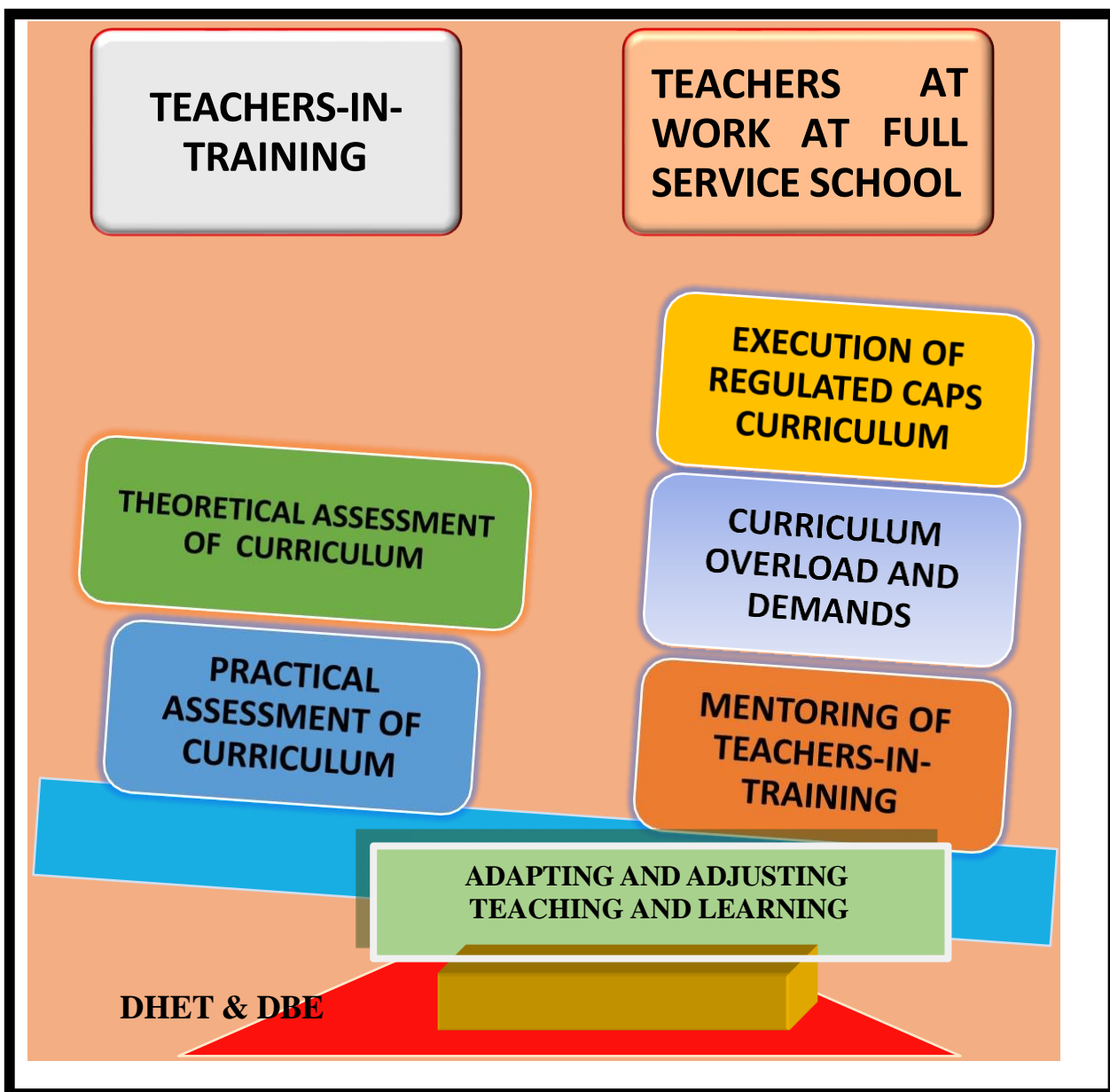
Figure 2: Interlacing pillars of education (adapted from Van den Akker et al., 2003)

Findings and discussion

Forms of training within an inclusive educational setting

This study is intended to both illuminate and amend invisible and unnoticed collaborations between the DBE and the DHET that are key springboards for meaningful and significant transformation in education.

My findings from my five focus groups with the teachers-in-training unfolded into pertinent information that demystifies inclusive education and the impact of the MDGs as a strategy to reduce educational inequality.

These focus group interviews and discussions commenced at the end of each week of work integrated learning. The information harnessed from teachers-in-training enabled me to better understand the challenges individuals face with implementing inclusive education at a DFSS. The three broad research questions that were posed to focus groups were fruitful in obtaining rich data and hence in creating a new body of knowledge to validate my argument that creating synergy between the two arms of education in South Africa (DBE and DHET) will easily and swiftly assist the process of addressing diverse learning barriers.

The various contributions were analysed and four key themes emanated from the information obtained. These were i) placement of teachers-in-training; ii) expectations from supervisors of tertiary institutions; iii) reflections from mentees about lived experiences; and iv) interventions and follow-up.

Five of the teachers-in-training gave insight into how operations teaching practice is done at their respective tertiary institutions. Students are expected to complete five weeks of practice teaching and their supervisors visit them up to three times during their teaching practice to supervise, assess and give a competency confirmation. This competency assessment is intensive and teachers-in-training that underperform and do not meet the minimum requirements cannot graduate. However, the teaching practice administration departments of the various tertiary institutions merely require the student to find a school close to their homes to accept them for this intensive practice teaching; there are no requirements for screening the schools and not guidelines on the type of school to approach. What was particularly attention-grabbing was that four of the teachers-in-training did not know the role and expectation of a FSS until they had already started their practice teaching at DFSS. Hence, being satisfied with the school was not as important to the tertiary institutions as identifying placement positions

within the stipulated time frame (since the contact between the school and the tertiary institution must be done about three months before the actual practice teaching takes place). As stated by contributors: "….. I came to this school because it's closest to my home . I walk to school...*"* (DFSS3); and "the principal of a school next door to my school does not take student teachers [teachers-in-training]…this is the only school in my area that agreed to complete my paperwork in time…"(DFSS 4).

So, as illustrated above, the intended, implemented and achieved curriculum may not be executed flawlessly or adapted to CAPS and DFSS demands; this is likely to result in compromised outcomes. The Kern (2021) theory of capability and bio-ecological theory is in sync with teaching at an FSS, but resilience and adaptative ingenuity theory gives a clearer picture of how teachers-in-training have to adjust to a the school because this demands that the students accept the demands of their tertiary institution; signing their contract is thus binding— and in the case of DFSS, this is for a period of five weeks.

The above situation is also described by Rose & Norwich (2015) as building teachers' impetus and ability for entering and sustaining collaborative relations with each other and with other professionals; this is crucial both for addressing present risks of exclusion and underachievement, and for creating conditions for preparation to meet the demands of their future collective commitment and efficacy when entering the world of work. Students will be empowered by having to practically enforce EWP6, while DHET works simultaneously with schools where their students are undertaking their practice teaching.

The second theme relating to expectations from supervisors of tertiary institutions gives insight into both RQ1 and RQ2.

Participants DFSS1, DFSS5 and DFSS6 clearly stated that supervisors that came to give them a report for their practical certification did not make any concessions for them having to meet the demands of their inclusive-education-compliant mentors. It became very evident that supervisors lacked understanding of FSSs being different to other schools. As observed by participants: "Supervisors don't even understand that this is an FSS and there is much more expected from us…At university there is no mention of an FSS" (DFSS5); "In my last school I hardly did as much research as here and I received a better report…other colleagues get distinctions for teaching practice easily…this is not good" (DFSS2); "I could not believe that

my supervisor penalised me for not separately making a lesson plan for special needs assessments (SNA)…her comments were very depressing"(DFSS1).

The above contributions are what Florian and Spratt (2013) address in terms of challenges that teachers must face in understanding how their interactions (with each other and with other agents) add to the transformation and reproduction of the structures in which they are compelled to work. This combination of elements creates substantiation that an inclusive pedagogy is operative (Florian and Spratt 2013).

The matter stated about "other" schools indicates that there are dualities that exist within the education department regarding the mainstream versus FSS. This on its own creates anomalies in how teachers-in-training get their supervision and final certification under different contextual realities and different pedagogical demands.

DFSS has made experiences of their teachers-in-training memorable since the responses give deep insight into how they are immersed in knowledgeability at this school.

In this third theme of reflections from mentees about their lived experiences—mentees reflecting on their actual experiences—both RQ2 and RQ3 were handled effectively. The mentees provided strong opinions about their "hands on work" and "research work" to deal with the learners' differentiated needs. Participants DFSS2, DFSS3, DFSS4 and DFSS6 made some intriguing revelations about their experiences:

> My knowledge meter expanded when I had to adapt resources to suit Helin[7] because DFSS does not have resources of low-technology systems. My mentor is innovative, so I copied the learning style…Helin is already using object symbols like a portable slate to communicate….I improved on it by getting fridge magnets to teach fruits and food…I felt good. (DFSS6)

> I was overwhelmed to tell the mentor about Sabi[8] and the answers given during my appraisal and assessment. The compliment from my supervisor at the end of the lesson made his face glow. (DFSS2)

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[7] Anonymous name to protect the identity of the learner.
[8] Anonymous name to protect the identity of the learner.

> I was extremely sad to see the vulnerable learners that have manifested issues from their household challenges…. My mentor works so hard and effortlessly to make every child feel at home and comfortable… I now love my profession. (DFSS1)

> Teachers in this FSS work with multiple issues simultaneously. Mainstream learner and dealing with inclusivity is too hard….The managers are constantly having meetings for SNA learners… So much paperwork has to be done after school…but my mentor copes without complaining. (DFSS4)

The above contributions from the teachers-in-training are the very concerns raised about dual pedagogy in an FSS. The experiences of the mentees indicates that despite earlier complaining about how other schools have less work they felt satisfied with the learning they had encountered through actual experience. These are the skillsets that will empower the teachers-in-training to get into the world of work with lived experiences that have expanded their pedagogy of dealing with learners with diverse learning barriers.

These teachers-in-training can increase their knowledge since the intersecting of learning barriers builds their expertise and displays how learners have to be handled differently because they are kept from participating in meaningful learning experiences. Pantic & Florian (2015) subtly explain how lived experiences can prepare teachers-in-training for exercising their collective agency to deal with exclusion and underachievement and to contribute to the transformation of education by entrenching additional expertise and support. In this instance, knowledge of the relational aspects of agency enters into the structures and cultures on which future agency will depend.

The fourth theme that surfaced from the discussions is interventions and follow-up at an FSS. This substantiates that synergy from interagency in the education sector can lead to smooth and effective transformation that addresses the inconsistencies left by the apartheid régime. Responses by teachers-in-training to RQ1, RQ2 and RQ3 make meaning of how mentors and mentees can have a symbiotic and mutual understanding of working as a team while seamlessly partnering DBE and DHET.

The contributions from DFSS3, DFSS4 and DFSS6 gave acute insight into the interventions and follow-up that are beneficial to both them and the mentors:

> I felt that my intimidation of working with a mentor who taught for 29 years was wiped because I was given a chance to explain some of the stuff I knew about EWP6 and how it can be used wisely…(DFSS4)

Further feedback was as follows: "…the role playing activity helped SNA learners to sing and add their little bit to our lesson… my mentor was moved and amazed at the outcomes although it seemed impossible at first…" (DFSS6); and "I was very happy when my supervisor asked my mentor to describe my extracurricular and extra-mural contribution… The campaign that I hosted for activity day was discussed at campus as well…" (DFSS3).

The inputs from all three participants clearly stressed that it is not just one party that can benefit but both when learning is mutual, and interchange occurs between teachers at work and teachers-in-training.

Kern (2021) endorses this statement in observing that students in learning do not only learn but they also give their bit of knowledge from the theoretical tertiary level work they have experienced.

Mentors in inclusive training settings at a full service school

The importance of mentors needs to be highlighted. The five focus group discussions held with the eight mentor teachers (teachers at work) at the end of each week of practice teaching gave me the impetus to write this article since it required additional work and also demanded additional support from the teachers at work. The mentor teachers had many years teaching experience, ranging from 10 to 29 years, although they each only had eight years of working as FSS teachers. The feedback from the eight DFSS teachers (labelled Mentor 1 (M1) to Mentor 8 (M8)) stood out in three themes: i) learning support structures of inclusive education; ii) the attitudes of addressing inclusive education, and iii) readdressing policy and a plan of action in dealing with inclusive education.

The constructive input from the mentors of DFSS provided me with impetus to pursue my research into how a mutual collaborative model will assist to jointly upskill and retool both teachers at work and teachers-in-training.

The initial concern raised relating to the learning support structures of inclusive education was articulated by M1, M4, M7 and M8; they gave salient points to address issues that could assist teachers at DFSS to improve answers RQ1 and RQ2.

> As a subject teacher and mentor to a teacher-in-training, I have to increase my support structures besides assisting my professional learning committees. In assisting my mentee, I learnt that it's important to find growth points in every learner to easily formulate an individual support plan readily." (M7)

> "… Having to abide by the demands of inclusive education I am forced to find a learning support system…To identify resources and relevant stakeholders like governing body, teachers-in-training and so on…who can help our learners." (M1)

Further feedback was that "We are lucky to have institutes send teachers that can help empower the learning support structure... to improve performance" (M8); and "Our school has accessed and facilitated the learning support from these students that gives teachers and learners great success besides getting them to pass teaching practice" (M3).

The mentors at DFSS indicated that it is important to identify the strengths and areas of development of learners; in working with the teachers-in-training their professional learning committees will be strengthened. This support will benefit teachers-in-training, teachers at work and the learners. Such empowerment will also explore strategies to enhance stakeholder participation and the need for enhancing teacher skills. As M1 noted, collaboration encourages responsiveness to support systems; DHET and DBE working together will make inclusive education doable.

The responses that were given by DFSS teachers correspond to the approach taken by Zwane & Malale (2018) that encourages a support system for teachers executing inclusive education in Swaziland.

The second theme that is drawn from mentors at DFSS is teachers' attitudes to inclusive education which was perfectly described and backed up with explanation from M1 and M2. The contributions in this theme answers RQ1, RQ2 and RQ3 in explaining how creating synergy will have a positive effect on education transformation that embraces diversity and nevertheless achieves unity.

As a mediator it becomes very important to strike an internal dialogue to have an understanding of what mentoring means for learners as well as student teachers (teachers-in-training). As a classroom CEO it is necessary to find solutions to the dilemmas of both learners and teachers-in-training to give them scaffolding….As a mentor to learners and teachers-in-training the classroom climate must be conducive to embracing diverse needs and culture. Delivering of curriculum must be done to uphold the policies…after all, teachers or mentors must be role models. (M1)

As an FSS there must be every sign that teachers at our school get involved in Cooperative learning and teaching approach… teachers as mentors must set mutual outcome for teachers-in-training and from their engagements with all stakeholders. Tasks must be designed and planned, taking in account the needs of all in class. Twin teaching methods help me in my class where mixed ability learners work with a buddy system of helping each other…I encourage my mentee to be an active member of the class. (M2)

Both M1 and M2 gave an adequate account of how inclusive education must be accepted and executed at an FSS in accordance with the regulatory policies of 2014 whereby every principal adheres to the plan of action to fulfil the undertakings of the Salamanca Statement that addresses fostering social inclusion.

Participant M1 expressed a commitment of nurturing teachers-in-training and learners and accommodating the needs of them all. There is a clear indication of utilising the human resources to the mutual benefit of DFSS as a mentor partnering in the training of teachers from universities.

The flexibility of the curriculum to accommodate all stakeholders that require mentoring (be they learners, teachers-in-training or parents) indicates that inclusion is of key importance. This is an indication that at DFSS, shared relationships and synergy are effective. The school has the presence of a shared value creating a complex interplay between inter-agency and intra-agency creating multi-agency collaboration.

The last theme that emanated from teachers speaks directly to readdressing policy and a plan of action in dealing with inclusive education. The information shared by M4 and M5 added immense value for addressing policy adjustments and synergy that answered RQ1 and RQ3 perfectly.

Being in an FSS means that all policies that are adopted and gazette must be adhered to and strictly followed....I cannot say that I am comfortable with the Screening, Identification, Assessment and Support Policy fully but I complete every special needs assessment to the best of my ability. Inclusion means accommodating mainstream and learners with barriers to learning in my class…learners that have physical and cognitive barriers….Some learner coming from poverty and low income households bring about different types of challenges to the teaching and learning environment. In helping my mentee my work become escalated to keep the teacher-in-training on par with the various policies and laws that awaits us daily. (M5)

There are stacks of paper-trailing for learners experiencing barriers to learning and when the mentees come into our class our work is increased because timetables and actual teaching time is lost …. Just to get all university work stamped and completed takes over 2 hours a week. Equality and equity and important aspects that the department overlooks. To a certain degree I can say if we are to change as South African then it will be at snail pace…. Get the higher education institutes to address learning barriers like FSSs so that when teachers-in-training comes its easier for them to fit into any classroom. (M4)

The above contribution that looks at the adjustments of policy are very significant. DFSS is compelled to accommodate teachers-in-training but as the mentor the task becomes complex and demanding when mentees are not au fait with rules and policies as set out by the national department of education. Teachers-in-training cannot only a theoretical knowledge of EWP6; they also require a practical approach to putting the content into practice. This must be addressed in accordance to how FSSs embrace policies, so that the synergy between institutions and the FSS is in alignment in terms of execution of the CAPS curriculum and the interpretation and execution of policies relating to inclusive education.

Kern (2021), DoE (2020) and Bornman (2014) clearly articulate that policies must be brainstormed/unpacked by the custodians implementing relevant CAPS policies (addressing the integration of mainstream and inclusive education implementation). There must be alignment in the policies for teachers-in-training and mentors at school, so that fulfilling the MDG obligations of inclusive education are not down-played or compromised.

Synthesis of findings -enhancing inclusivity through teacher training

The focus of how teachers-in-training are guided by their DHET tertiary institutions for their practical training in DBE institutions is under the spotlight in this discourse; the desired outcome is to bring about adjustments/amendments to existing regulatory policies that fall under the DHET and DBE but which are not yet synchronised or harmonised via guidelines. The challenge of getting teachers-in-training to implement inclusive education can easily be resolved through ensuring adequate training and mentorship on policies and practices. In essence such an approach would require a symbiotic and mutual intersection between the DHET and DBE.

The intention of the researcher is to provide impetus for introducing distinctive/reasonable accommodation for DHET teachers-in-training at DBE schools. It is suggested that, to successfully complete their teaching qualification, there should be a prescribed requirement involving clear aspects they meant to cover in practice.

Multipronged approaches fits perfectly in addressing a synergised collaboration between DHET and DBE especially when it comes to assessments. For instance, a two-pronged approach to assessment which involves the tertiary institution assessors and the mentors/teachers to work by assessing whether the mentee/teachers-in-training meet set criterion becomes an essential component to successful synergising of policies and practice. In practice synergizing can be successfully implemented through memorandums of mutual understanding that are deeply entrenched into the structures of both the DHET and DBE. Multipronged approaches that have become effective sources of synegysing have included the "3 A's" approach which is grounded on *ability*, *assurance appeal* and *assembly application* of the DHET curriculum. This is translated in the practical approach to the didactics of teaching at FSSs and in accordance with the CAPS executed by teachers at work. The conceptional framework of pre-service regulation of teachers-in-training requires firm grounding on *ability*, *assurance appeal* and *assembly application* which are critical to the development, character building and shaping of the teachers. The immersion of teachers-in-training in the daily work of experienced teachers creates a cross-cutting professional growth plan to enable education transformation to be meaningful. The involvement of teachers-in-training and teachers at work needs to be cognitive, communal and competitive because this will create multiple collaborative networks.

The collaborative networks will allow for two pronged interventions from DHET and DBE that focus on dual abilities and connectivity in the education sector. The approach must integrate systemic, physical and day-to-day teaching and learning occurrences. The DHET will first need to include mechanistic knowledge into their inclusive education curriculum design and assessment programmes. This inclusive education must synergise with the discourses at FSSs, thus creating unity in the underlying theory of synergistic partnership between teachers-in-training and teachers at work. The creation of a shared partnership will enable the construction of a single umbrella structure or theory. Second, teachers-in-training must complete at least one month of inclusive education as a compulsory practice training module which should be examined by both the assessor from DBE and the DHET.

This multipronged-pronged connectivity that interweaves skills and practices from mentor and mentees (including their shared abilities) has mutual meaning/interconnectivity; first, this is because teachers at work will constantly be getting in-service retooling of hands-on information and strategies. They will therefore keep abreast of professional trends in up- skilling and retooling being adopted by tertiary institutions internationally.

Second, in the execution of the CAPS, a synergistic networking and brainstorming partnership on quality management systems will take place between teachers-in-training and teachers at work via a shared information portal; this in turn will enable assurance appeal.

Third, the connectivity of DHET and DBE will undoubtedly bring about feedback from the assessors, mentors and mentees that will strengthen the teachers-in-training toolkit when entering the world of work; this will generate enough information to make educational transformation significant and effective.

Tertiary institutions and schools will have progress conferences dealing with common challenges to implementing the EWP6 and understanding its implications for teachers, teachers-in-training and learners.

Completing the teaching certificate: preparing for the world of work

Through the lens of transformation in education, addressing pedagogical excellence through equity is imperative. A paradigm shift has to be made so that practice teaching and teaching unite seamlessly based on actual teaching in the classroom. This involves appropriate practice of our teaching methodologies right from conception to confinement in the actual classroom situation.

We need a positive outlook between teachers-in-training and teachers at work on transitioning to improved teaching of learners that have learning barriers. We must not overlook the problems arising from teaching strategies that are creating inequities in the South African education system. One way of addressing this is to avoid having teachers that cannot cope with learners that have particularly high need for support in their learning.

These learners that have barriers to learning (be they cognitive, psychosocial or psycho-emotional) must not be marginalised; their distinctive strengths in performing in the core subjects must also not be underrated. It is vital that every learner of the CAPS curriculum has access to the full resources. After having compulsory experience and accreditation of working at an FSS, tertiary institution teachers-in-training must demystify and readily implement the EWP6; such implementation will have the effect of cascading inclusive education.

Effective teaching of implementation of differentiated curriculum strategies tailored for differing learning abilities will lead to seamless transformation of education. The unilateral education system formed in 1994 created a melting pot of previously advantaged schools that continued to retain their status quo of extravagance and comfort amidst school that lacked infrastructure, resources and human assets.

Every child under the South African sun that must be accounted for in terms of their educational needs; the above inequalities that exist cannot be the grounds for, or barrier to, providing the necessary high-quality educational service.

Conclusion and recommendations

Synergy between the DBE and the DHET is needed to strengthen the foundation of education by underpinning inclusive education as a cornerstone to transformative teaching and learning. The blending and recalibration of inclusive education will be a new currency to address the pre-democracy equity and equality disparities. Inclusive education will become the key driver that rapidly and decisively shapes and recreates education. The following recommendations are proposed:

1. There is a great divide in the structure of education in South Africa, between policy and practice. A common area of concern relates to inclusive education where meeting diverse learning needs is a priority. Ensuring effective patterns of learning for teachers-in-training and teachers at work at FSSs requires understanding, adapting and adjusting to the situation of serving and catering for inclusive education. Synergistic partnership is necessary to ensure a meaningful and well-thought-out approach for novice FSS management, novice FSS teachers and teachers-in-training.

2. It is recommended that for certification, every teacher-in-training should be required to spend at least one term in an FSS in fulfilment of practice teaching. Scaffolding the teaching and learning experience; to achieve this, a synergy interfacing both arms of education, namely DHET and DBE should be created. This synergy should guide students to mastering skills and knowledge acquired from mentorship towards a more independent, critical and reflective experience.

3. The concepts , skills, attitude , values and knowledge acquired must as a minimum meet the National Qualifications Framework level for the given qualification category.

4. Assessments and examples must be kept-up-to-date and must apply to the real teaching experience of implementing EWP6.

5. Tertiary institutions should build examples and multiple learning trials for their students to be undertaken during teaching practice which will add value to learners, mentors and the community that is being served.

Setting these priorities, and with a common focus of stakeholders working together will improve inclusive education outcomes. The expectations of both the teachers-in-training and the mentors can be exceeded when involvement is seen to be for mutual benefit.

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Negotiating teacher pedagogies within a transforming South African schooling setting

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Abstract

The paper focuses on the dynamics surrounding teacher's work in which a combination of teacher personal and professional identities help shape the way teachers conduct their professions. The paper explores various ways in which teacher's training and the personal choices tend to inform their pedagogical approaches. The spaces in which teachers work are not only complex but they tend influence the teacher- student relationships which ultimately paly a central role in determining learner success. The paper explores some of the issues related to measuring teacher competencies through results. The papers key argument is that to understand the work of teachers a holistic approach to understanding their identities, their professional competencies, approach to work as well as the work context out to be followed as any narrowly construed approach would not result in any meaningful understanding of the complexities surrounding teacher pedagogies especially in a transforming setting. The paper is based on review of literature and it adopted a constructivist approach in its interpretation of arguments.

Keywords: Globalisation, educational change, transformation, resilient, diversity.

Introduction

This paper focuses on how teacher identities tend to influence their work in terms of their personal, professional and situational characteristics in relation to individual agency. It further analyses the ecological context where their work is undertaken. In the South African context, teacher workspace is dynamic and in most instances teachers have to negotiate through This paper's key arguments are founded on the ideas from studies on teachers' work that cover

four broad themes. The first focuses mainly on the nature of teachers' work (Harrison & Killion, 2007; Dana & Yendol-Hoppey, 2009; Cervone & Cushman, 2012) while the second investigates the complexity of such work (Dana & Yendol-Hoppey, 2009; Nichols & Parsons, 2011). The third broad theme is the pedagogical obligations of teaching (Leithwood & Beatty, 2008; Skaalvik & Skaalvik, 2010; Penrice, 2011; Cervone & Cushman, 2012; Lepida & Veniopoulou, 2017) and the fourth combines the aforementioned themes, explores teachers' work in contexts of adversity (Harrison & Killion 2007; Vanderbilt-Adriance & Shaw, 2008; Cervone & Cushman, 2012; Durlak et al., 2011; Hunter, 2012).

This section reviews the international literature on teachers' work. It describes the context of teachers' work in different countries and notes that the literature focuses on teachers' work as well as their students whose results are used to measure the effectiveness of such work. While students obviously play a significant role in a teacher's life, insufficient attention has been paid to the diverse responsibilities that are added to teachers' work over and above teaching. As the agents of the state that implement the curriculum, teachers take on many responsibilities.

The review revealed differences in the level of effort and sacrifice among teachers in coping with students with different pedagogical obligations. Cultural diversity among students and a multifaceted curriculum add to their responsibilities.

Teachers are also required to plan, implement, observe and reflect as well as support education transformation. While their professional development emphasises the special competences and skills required, the socio-economic context in which they operate, and its incongruities have been neglected.

The literature review also highlighted the differentiation and intensification of teachers' work across countries, which puts pressure on teachers. Contexts of adversity require teachers to become resilient. Finally, it was noted that teachers are required to impart knowledge by ensuring curriculum delivery, while also refashioning their approach to work to suit their students and the school. The literature review highlighted that teachers spend more hours working than other professions as they put in many hours of unpaid overtime at home.

In terms of the structure of teachers' work, the literature notes that this includes, but is not limited to teachers as "technicians", teachers responding to context-specific pedagogical obligations and teachers having to cope with complexities and challenges beyond academic

concerns. As technicians, teachers are called upon to respond to problems that emerge while executing their duties. Their training and knowledge do not always prepare them for the complex and challenging pedagogical obligations imposed by working in adverse contexts. Furthermore, the cultural and structural composition of each school is different in line with the type of community; students; infrastructure and support structure; and operational features. This results in considerable variations across geographical settings, and social and cultural capital. Teachers' work is thus complex and multifaceted, requiring individual agency while complying with statutory regulations.

The following section explores teachers' work drawing on an array of theoretical and empirical perspectives. Besides highlighting the intricacy of teachers' work, variations in the context are revealed.

An overview on teachers' work in diverse contexts

Teachers' work is regarded as a sociological act. Hence, a key focus of this study is to explain social action that generates structure-agency outcomes and how this is achieved in the context of adversity. Of particular interest is how teachers shape their responses to contextual circumstances and how they manage structural constraints at their particular school.

Numerous studies have been conducted on teachers' work in the international context (Wigfield & Eccles, 2000; Day, 2000, 2012; Richardson & Watt, 2006; Harrison & Killion, 2007; Mpokosa & Ndaruhutse, 2008; Dana & Yendol-Hoppey, 2009; Berry, 2009; Cervone & Cushman, 2012). Day (2000) observes that traditional definitions of teaching, including enactment of the curriculum, mutual respect, mutual trust, autonomy and life-long job security are now contested. According to Gur (2014), teachers require appropriate skills because they are responsible and accountable for education-related decisions in the classroom and beyond. Harrison and Killion (2007) note that the many roles performed by teachers include those of resource provider, curriculum specialist, learning facilitator, mentor, data coach and catalyst for change.

As facilitators and coaches, teachers take their students' circumstances into account and intervene and assist in cases of adversity. Such students are motivated to work hard and produce better results. From a critical sociological perspective, Day (2012, p. 7) describes teachers as "victims of policy-driven imperatives as bureaucratic surveillance and new pervasive forms of contractual accountability…". However, Day (2012) adds that teaching is undertaken by "teachers who remain skillful, knowledgeable, committed and resilient" (p. 7).

Richardson and Watt (2006) focused on why people choose and remain in teaching as a career. According to Day et al. (2006) those that choose to teach have "an enduring belief that they can make a difference to the learning lives and achievements of students" (p. 10). They add that teachers' agency involves cognitive and affective endeavours to make a difference in students' lives by enacting the curriculum laid down by the education authorities. Newman and O'Brien (2013, p. 127) support this view and highlight that people also practice "impression management" where they seek to control and manipulate information about them in order to influence the impression that society forms of them.

A sociological contradiction occurs in teachers' world of work in that they live in a society that reveres personal accomplishment but derides individualism. Sun and Leithwood (2015) identify four types of teachers whom they refer to as "school leaders travelling along four paths" (p. 567) and note that conditions in the school and classroom have a direct bearing on agency.

The rational path refers to teachers' instructional practices, while the emotional path describes the degree of trust teachers have in education stakeholders. The collaborative nature of teachers' work fits into the organisational path and finally, parents' hopes for their children are referred to as the family path. Teachers are also expected to fulfil the expectations of impersonal, bureaucratic institutions and adhere to regulatory pedagogical obligations (Dieltiens & Meny-Gilbert, 2012). Shulman's (1987) description of teachers as "technicians" is relevant in situations where they react to the pedagogical obligations of others. However, as noted in chapter one, classroom dynamics might not fit with the perceptions of those that are not intimately involved with the school.

As an Organisation, a school is more than simply a structure; rules, policies, goals, job descriptions and standard operating procedures describe how teachers are expected to work. Each school, and each division within it, develops its own norms, values and vocabulary.

This is generally described as the organisational culture. While the organisational culture is persistent and embedded, teachers find ways to exert some control over their lives within the boundaries of the school (Ghaemi & Yazdanpanah, 2014).

Besides the regulatory work and self-efficacy shown by teachers, Day (2012) bases his perspective on the work of Sachs (2003) who conceptualised teachers as "activist professionals" (p. 7). This is due to the fact that, first, they are expected to make a difference in the lives of their students, and second, while they confront "bumpy moments" (Day, 2012, p. 8) along the way, they uphold their obligation to teach to their best ability.

Mpokosa and Ndaruhutse (2008, p. 6) identify three basic requirements for a functional education system, namely, sufficient staff, a workforce comprised of competent and dedicated professionals, and networking and collaboration between teacher unions and the government. Dana and Yendol-Hoppey (2009) describe teachers' work as akin to a masterpiece, which mediates the recurring aggregates of duties, laws and responsibilities. They emphasise that teachers' daily work reflects "complexities, paradoxes and tensions" (p. 1). Such challenges are exacerbated by the "paradox of decentralised systems (that is local decision-making)" (Day, 2012, p. 9).

Biographical background and teachers' work

Day et al. (2006) explored variations in teachers' work, lives and effectiveness. Teachers come from different backgrounds and their personal history is blended with their professional roles. They have diverse cultural beliefs, values and priorities and their reasons for entering the profession differ. How each teacher adjusts to teaching is dependent on their ability to adjust and acclimatise to policies and rules.

Teachers also train or qualify at different institutions and the manner in which they impart their knowledge will vary. The combination of different personalities and efficacy results in multiple dynamics that each school has to deal with (Branson & Zuze, 2012).

While the choice of career is a major concern for any workforce, it plays a vital role in teaching because teachers constitute a "systemic agency" (Ebersohn & Ferreira, 2012, p. 32) that is entrusted with preparing and transforming students for the world of work.

Teachers' personalities influence how they deal with work not covered in the descriptors that regulate the profession as well as how they respond to particular types of students. The term "intrinsic career-value" implies that teachers have a natural passion for teaching. According to Balyer and Ozcan (2014), teachers choose their career based on personal rather than economic and social factors. Some teachers see their role as uplifting children and influencing the younger generation (Kelly, 2012; Lawver & Torres, 2011). Balyer and Ozcan (2014) also found that, teachers' perceptions of their career is based on the respect the profession commands, money and social benefits.

Kelchtermans (2005) explains that teachers have to adjust to the context owing to differences in their cultural background or socio-economic circumstances and they may feel vulnerable in the school context. Teachers' sense of self-identity has not been extensively explored in the literature. When novice teachers enter an appointed school for the first time, the boundaries between themselves and their role as teachers may be blurred. They may reconfigure or re-pattern their work or continue to use methods that they learnt during their training.

Leana (2011) notes that teachers possess human and social capital that they draw on in their work at school. She measured the three aspects that comprise teachers' work or professional capital, namely, human capital (individual talent); social capital (the collaborative power of the teachers at a school) and decisional capital (the wisdom and expertise to make sound judgements about their work that is cultivated over many years).

Professional capital assists teachers to deal with learners from a context of adversity to achieve their primary function, which is to teach. In contrast, Elmabruk (2008) points out that teachers come from a variety of backgrounds. Cochran-Smith (2008) states that several interpretive frameworks are useful in this regard, including understanding teachers as potential proxies for social change and that all teachers have manifold identities and life histories structured by race, class, culture and other aspects of systems of privilege and oppression.

Each teacher has a different biography. In executing their work, they are expected to be 'objective'. Alexander (2011, p. 11) observes that "many white educators have low expectations of their non-white learners, simply because of their belief that 'Black students have less innate potential than their white counterparts'". One of the key findings of Day et al.'s (2006, xiii) study was "extreme wavering whereby teachers' lifestyle has an impact on

their work. This could include domesticated challenges from family (personal), discipline problems with learners (contextual) and regulatory challenges in terms of professional pedagogical obligations".

In the South African context, some teachers were part of oppressed groups in the past, while others were previously advantaged. Some teach at mission schools, while others are based in in public, township and rural schools, or elite institutions. These different schools have different levels of facilities and infrastructure.

Ebersöhn (2015) observes that, "different contexts require a cognizance of pluriversality and geopolitical variance as a result of unequal development" (p. 1). The life-world theory of communities is an appropriate framework to understand the situation in poor rural schools. People form a bond with a particular space over and above its geographical positioning and cultural identity. In some places, there is innate connectivity among individuals. Ebersöhn (2015) speaks of "chronic and cumulative adversities" (p. 4) in South African schools which create challenges for teachers. The significant disparities among schools in South Africa account for the different dynamics of teachers' work (Gardiner, 2007).

In rural communities, students are expected by their families to perform chores before and after school (Msila, and Netshitangani, 2015). They may go to bed and come to school on an empty stomach, which means that they are unable to focus on the lesson. They do not complete their homework or study at home, resulting in poor examination results. Teachers have very little or no communication with the majority of their parents. There are also instances where parents are uneducated and unable to supervise their children's homework. Despite this, some parents draw negative comparisons between their child's school and the smooth running urban schools (Gardiner, 2007).

Children that perform poorly at school are at risk of dropping out of school, and are exposed to social ills like substance abuse, teenage pregnancy, stealing and prostitution.

Complexity of teachers' work

Teachers' work is shaped by "context-specific interactive activity" (Dana & Yendol-Hoppey, 2009, p. 3). They are required to executive tasks on time and fulfil their statutory responsibilities.
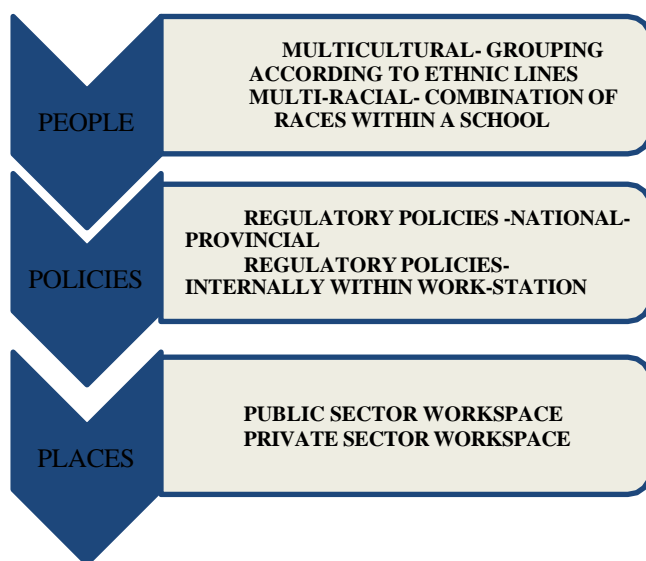
Teachers are highly likely to bring about change based on their experiences and the knowledge they acquire in the context of their practice (Dana & Yendol-Hoppey, 2009, p. 4). The manner in which they adapt to their environment provides an understanding of how contexts influence their work. This study draws on the research participants' actual experiences to shed light on the distinctiveness of the pedagogical obligations placed on teachers when dealing with students from low socio-economic backgrounds.

The multifaceted elements that influence information, feedback and the modification of teachers' work highlight the complexity of teaching. Such work is too complex to be measured by a single metric. Scholars like Ridley et al. (2008) and Leithwood and Mcadie (2010) thus call for a range of tools and metrics to measure what teachers are accountable for at their place of work. Any examination of teaching also needs to consider the roles of policymakers, administrators, parents, students and the community at large (Leithwood & Mcadie, 2010, p. 42). Dieltiens and Meny-Gilbert (2012) add that the subjective experience of poverty in a context of poor material, financial and living conditions also impacts on teachers' work.

Florian's (2012) research on Scottish rural schools notes that poor socio-economic conditions are a global phenomenon that impacts on teachers' work. Nichols and Parsons (2011) examined how teachers deal with setbacks and challenges, as well as the manner in which they harness institutional power in such adverse circumstances. There can be no doubt, however, that poor working conditions undermine teachers' work.

Traditional models of teaching assume that teachers that are able to effectively harness their students' academic aptitude and motivate them to perform better (Cervone & Cushman, 2012, p. 2). However, they are also required to assist their students to cope with social, emotional and cultural issues. This is particularly true of teachers that operate in a context of adversity.

The New Work of Teaching's (TNWoT, 2012 p. 12) case study on the work-life of teachers in Calgary, Canada, notes that when teachers' work increases in terms of volume and/or complexity, tasks and expectations are intensified. Honig (2006) and Tek (2014) described how people, policies and places interact to impact on the implementation of educational policy. This is illustrated in the figure below.

PEOPLE

MULTICULTURAL- GROUPING ACCORDING TO ETHNIC LINES MULTI-RACIAL- COMBINATION OF RACES WITHIN A SCHOOL

POLICIES

REGULATORY POLICIES -NATIONAL-PROVINCIAL REGULATORY POLICIES-INTERNALLY WITHIN WORK-STATION

PLACES

PUBLIC SECTOR WORKSPACE PRIVATE SECTOR WORKSPACE

Figure 5 : Dimensions of education policy implementation

Source: Adapted from Tek (2014, p. 2)

White and Kline (2012) focus on teachers' work in the context of diverse, multicultural and multi-racial cultures in a rural community. The current study focused on teachers who may or may not be prepared for a diverse context. As noted in chapter one, despite the adoption of various educational reforms aimed at redressing inequality, gaps persists among schools in the democratic South Africa. Students whose parents can afford to do so have migrated to private and previously advantaged schools that are well resourced, while the majority continues to attend under-resourced schools.

Moreover, Devcota (2005, p. 13) maintained that primary school teachers working for the state seem to care little about the effect of their performance on student achievement, as "whether they teach or not, they are paid" (Devcota, 2005, p. 13). Private school teachers receive higher salaries and undergo performance appraisal, which motivate them to achieve higher standards.

The gaps between different kinds of schools are thus exacerbated. Furthermore, White and Kline note that highly qualified teachers are reluctant to teach in rural areas (2012, p. 36). Poor internal management, teacher absenteeism, inefficient use of time in class, and ineffective teaching methods add to the challenges confronting many South African schools. While these are not peculiar to this country and are indeed, experienced in developed countries such as the United States and Australia, such conditions negatively affect teachers' work. It is for this reason that White and Kline (2012, p. 36.) call for a "re-conceptualisation of teacher education curriculum and a more integrated approach between coursework and the rural professional experience (practicum)".

Negotiating teacher pedagogies through professionalism

Teacher pedagogies cannot be fully understood without closely engaging with what teachers do in pursuit of the good within their profession. According to Lepida and Veniopoulou (2017, p. 19), teacher professional development focuses on technical, reflective and critical skills that comprise the basic teaching competencies. The state requires teachers to focus on implementing the curriculum and emphasises the application of scientific knowledge and critical thinking. Teachers are expected to set fair and achievable benchmarks for students. This requires "just in time" feedback by the teacher-coach, who offers on-going encouragement as students develop and test new skills and knowledge in practice (Cervone & Cushman, 2012, p. 30).

Cornelius-White (2007, p. 113) applied a constructivist approach and found that both the classical model (teacher non-directivity, empath and warmth, and encouraging thinking and learning) and contemporary models are transformative. The study revealed a correlation between positive teacher-student relationships and positive student outcomes. This means that teacher-student relationships have a positive impact on students' development and growth. According to Harrison and Killion (2007), teacher are leaders who assume a wide range of roles to support the school and student success. This can occur in formal and informal settings that aim to build, capacitate and improve the school.

This implies that, as noted previously, teachers' work cannot be measured using a single metric because different levels and aspects of teachers' enthusiasm and commitment combine to reveal the level of their professional ability. Cochran-Smith (2008) noted that, in the era of managerialism, teachers' work is assessed by means of students' results in standardised tests and is rewarded by performance-based salary incentives. While it might make sense to measure service delivery from a regulatory position, this ignores the effort required to support students that are distracted from studying due to their poor socio-economic circumstances.

Harmon, Gordanier, Henry and George (2007) are also of the view that high quality teachers will produce excellent results. These studies imply that teaching is merely about imparting pedagogy and exclude the contextual challenges and setbacks that confront teachers in terms of institutional capacity as well as students that hail from disadvantaged socio-economic backgrounds.

According to Jeffries (2017), it is expected that, "teachers will continue with education and training". At same time, there is a "lack of new and diverse teaching and professional development opportunities available for transformative education which has a serious impact on teachers' work" (p. 12). Given that teachers are called on to fulfil their academic duties as well as address contextual issues, Jeffries (2017) states that self-care is important to avoid burnout.

Teachers that are conscious of the need to adopt a positive approach to their work and engage in self-care are more likely to fulfil the requirements of the core curriculum. All teaching staff are expected to maintain records that demonstrate compliance with regulations and legislation. Their work is intensive and includes planning, implementation, observation and reflection. However, teachers' professional development focuses on the required competences and skills, with little reflection on the socio-economic contexts in which they operate (Lepida & Veniopoulou, 2017, p. 23).

Teachers also confront increasing external pressure at circuit and provincial levels. Bascia and Osmond (2013) explored the relationship between teacher unions and government and highlighted the cultural, political and structural factors which contribute to the intensification of teachers' work. Global trends demand that they engage in on-going professional development as well as cope with the pedagogical obligations that educational transformation impose.

Leithwood and Beatty (2008) and Penrice (2011) identified six emotional triggers that influence teachers' work, namely, job satisfaction, stress levels, burnout, organisational commitment, commitment to change and a sense of individual/collective efficacy. Penrice describes the "in school intensification experience" (p. 104) and notes that, managerial structures, diverse cultures, individual relationships at school, self-imposed expectations and an increasing workload weigh heavily on teachers.

Burchielli et al. (2005) describe work intensification as "employees working more than they have before" (p. 95). There are two dimensions to this experience. The first is doing more or taking on additional roles, more tasks and bigger workloads (Burchielli et al. 2005, p. 96). The second dimension involves coping with a reduced workforce, either due to downsizing (layoffs), staff attrition (where staff that leave are not replaced) or not hiring new staff.

The socio-spatial structure of classrooms increases pedagogical obligations on teachers, associated with variations in the number of learners and school infrastructure. While some schools enjoy state-of-the-art teaching and learning facilities, many are under-resourced. This results in teachers functioning as isolated individual practitioners. The sequential structure of disconnected lessons interspersed by tests (Schwarz & de Groot, 2011, p. 261) and ensuring compliance with the regulations increases their workload. Penrice (2011) concludes that changes in "teachers' daily work have resulted from increasing control being exerted over teachers through curriculum, pedagogical, assessment, and school management" (Penrice, 2011, p. 104).

Intensification can be defined as an increase in teachers' workload, often "accomplished without sufficient resources or time" (Ballet & Kelchtermans, 2008, p. 47). Penrice (2011, p. 104) notes that it involves an increased number of tasks, including administrative work, accountability challenges within the classroom and the magnitude of work outside the classroom. Penrice (2011) adopts a Foucaultian perspective to show that rural teachers' work is a discourse of power and resistance. These teachers develop "technologies of the self" (p. 105) because they have to adjust their work owing to the lack of proper parameters.

Eppley's (2009) study examined the historical and political framework of the No Child Left Behind Policy in the United States. While the policy aimed to transform teaching, she notes that teaching in a rural school differs from other contexts. A balance is thus required between

the curriculum and experiences in the classroom (p. 2). In rural township schools, teachers' work is also determined by parents and students' level of involvement. The internal pedagogical obligations of their work and external regulators' expectations impose severe strain on teachers. Social realities such as teaching in a context where students come from a low/no income home add to their burden.

All teachers are expected to come to grips with the social relations in their work environment as well as cope with the pedagogical obligations of the core work and regulatory requirements. The level of flexibility they demonstrate to cope with the multitude of tasks renders them either resilient or inelastic.

Teachers are wedged between high expectations from the communities they serve (Macbeath, 2012, p. 14) and the pedagogical obligations of a multifaceted curriculum. Local, national and global developments impact on teachers' professional independence. When teachers exercise their agency beyond the classroom, with colleagues, parents, other agencies or with policy, they exercise leadership. As noted earlier, some school environments are better than others in fostering the capacity to deal with the challenges of teaching (Manik, Maharaj & Sookrajh, 2006; Day & Gur, 2010). Failure to deal with challenges results in a loss of direction in terms of funding and budgeting, curriculum development, teaching and learning strategies, discipline, staff–pupil relationships and school–community relationships (Day et al., 2011).

Caspersen (2013, p. 10) refers to a "strong normative aspect of professional practice where teachers have to perform many normative, discretionary acts in their work". He emphasises that teachers have to make judgements in many situations, constantly think on their feet and make quick, practical decisions while considering values and dilemmas. Casperson (2013) described decision-making as a basic teaching skill "because classroom work is multidimensional, simultaneous, immediate, unpredictable, public and cumulative" (p. 10).

Karaagaç and Threlfall (2004) explored Turkish teachers' beliefs and practices in the context of their work-setting. The work-setting is crucial to the conflict between a teacher's beliefs and his/her actions (Karaagaç and Threlfall, 2004, p. 141). Engeström's (1993, 1999) activity theory, consisting of a 'triad', is extended to include elements of the social context. The triad comprises three essential elements that are linked to reiterate their interdependence.

The activity theory is insufficient for this study because it deals with the formal elements of work. It focuses on mediation efforts, the division of labour and the rules. Another triad composed of the teacher, the community and teaching tools or techniques intersects this triad. However, the activity theory fails to take into account that some teachers confront an overload of material elements that are not considered by educational policymakers.

In the South African context, it becomes difficult for teachers to seamlessly adopt the imperatives of education departments since they operate in different contexts. Lemmer, Meier and Van Wyk (2006) note that many sacrifices are required to ensure that all citizens receive equal, quality education. The South African government's commitment to democratic participation, dignity, equality and social justice and empowerment of all citizens calls for teacher reskilling and retraining in order to ensure that they are adequately equipped to support social and economic transformation.

While teachers generally lack support from stakeholders, school evaluation causes much discontent. Bangs and Frost (2012, p. 20) state that "school inspections, along with the publication of 'league tables', have been cited as a major cause of unhappiness among teachers". In the United Kingdom (UK), self-evaluations are moderated and evaluated by inspectors. While teachers play a key role in their self-evaluation, they feel excluded from the external evaluation and inspection and are of the view that inspection should be controlled by an outside agency (Bangs & Frost, 2012, p. 21). This notion is opposed in countries like Denmark, Turkey, Egypt and Greece. For example, a participant in Bangs and Frost's (2002) study proposed:"…assessing teachers based on their performance and competence rather than years of experience, and penalising those who do not do the job well" (Workshop Facilitator, Egypt in Bangs & Frost, 2012, p. 21).

Timing and teachers' work

Naylor and White's (2010) quantitative study conducted in 2009 in Vancouver examined the work-life of 563 teachers. It found that they spent an average of 14.4 hours a week preparing, marking and engaging in other administrative tasks, as well as 7.1 hours on additional work. A similar study in Manitoba by Dyck-Hacault and Alarie (2010) found that only 28% of the participants agreed that their workload was manageable. Seventy-three per cent stated that stress and overwork were affecting their performance.

Work intensification resulted because teachers had to do more work in the same amount of time. Dibbon (2004) and Akkari et al. (2009) concluded that teachers spent 52 hours on actual work and 14.9 hours on assessment, reporting, preparation and testing. The three major concerns cited were the excessively complex nature of the curriculum, dealing with learners' diverse needs and having to wait long periods to have special-needs learners assessed and referred. Dibbon (2004) notes that, when teachers have insufficient time to plan, learners requiring remediation and special teaching suffer the most. The study revealed that supervising learners is a waste of the teacher's time and recommended that paraprofessionals be employed to handle non-core teaching activities.

Penrice (2011) examined teachers' work from the angle of pastoral care and noted that rural teachers' plight needs to be taken into account. She suggested that, first, the same professional standards should be applied for teacher assessment. Second, colleagues should offer care and assistance through social cohesion, networking, *Ubuntu* and collaboration, and experienced or 'old hand' teachers should support their colleagues. Mentoring and scaffolding among the teachers at a particular school will raise standards and enhance the profession's reputation.

Gunter et al.'s (2004) study in the UK that was commissioned by Price Waterhouse and Cooper concluded that "teachers work more intensive weeks than other comparable managers and professionals" (p. 3). It found that, on average, teachers work 52 hours per week while other professionals work an average of 44 hours per week. Many employers compensate additional work with overtime pay or a bonus, but this does not apply to state-paid teachers. The study participants commented that the "pace and manner of implementation of change has added significantly to their workload" (p. 7). Similarly, Smaller et al.'s (2006) investigation of Canadian teachers' work and their professional development found that the study participants spent 42 hours per week at school, working directly with learners and undertaking related tasks such as preparation, marking, supervision and administration and an additional 10 hours completing schoolwork at home (p. 25).

South African perspectives on teachers' work

Christie (2008) categorises the additional work besides teaching performed by South African teachers as administrative and organisational. The landscape of teachers' work has been influenced by the introduction of many policies since the ushering in of democracy in 1994,

aimed at pursuing a transformational agenda. After the demise of apartheid, there was an influx of students from township schools to previously privileged, better-resourced schools (Msila, 2009; Msila, and Netshitangani, 2015). However, the majority of students still attend under-resourced township and rural schools.

The nature of teachers' work is both visible and non-visible. According to Alexander (2011), visible and non-visible factors consist of personal characteristics that include background, culture, personality and workstyle as well as race, disability, gender, religion and beliefs, sexual orientation and age that the South African Constitution outlaws as grounds for discrimination. Teachers engage in many professional activities outside their classrooms in order to maintain the school organisation and to ensure that the students' experiences are coherent and productive (Leithwood, 2006, p. 10).

Given that all children below the age of 16 are compelled to attend school, teachers are confronted by the unpredictability of their students' lives. Day (2012) explains that teachers' work in a postmodern society where reforms have been ushered in in diverse ways at varied paces, requiring teachers to embrace change by adopting "political, organisational, economic, social and personal flexibility and responsiveness" (p. 9). Day argues that teachers' working conditions are symptomatic of the "paradox of decentralised systems" (p. 9), where, amid greater societal scrutiny and external accountability, government requirements increase teachers' workload.

Migration to better-resourced schools is not a uniquely South African phenomenon. African American families in the US took similar action to access quality education, impacting on how communities are shaped. Since education is the key to empowering disadvantaged students, this responsibility ultimately falls on teachers and how they construct their roles in enhancing the role of the state. Msila (2009) also notes that in post-apartheid South Africa, parents tend to choose one school over another in the same historically challenged geographic location because they believe that their child will receive greater benefits (p. 83).

Complexity of teachers' work in South Africa

In South Africa and its neighbouring countries, politicians and professional teachers have focused their attention on urban education, leaving many to assume that all is well in schools in rural districts. Very little attention has been devoted to understanding how teachers in those areas go about their daily duties and tasks (Adedeji & Olaniyan, 2011). The dynamics of geographical positioning differ from school to school where space and social life interact and shape each other, compounding teachers' work when learners come from low socio-economic backgrounds.

Schools in both rural and urban areas have their respective set of challenges in terms of social and economic realities. When people move from rural areas to squatter camps amid urban dwellings, there is a drift of students into urban schools. Tregenna and Tsela (2008) note that there are two distinct economies in South Africa and where a person is located determines job prospects and local economic activity.

Spatial inequality creates many complex challenges, not only for teachers' work but for people's lifestyles in general. Growth in human capital has a direct impact on health and education. Provision of RDP housing places the previously disadvantaged, the unemployed and those that depend on state grants in a single community. This community in turn produces a population of students that attend schools in the area; how this affects teachers' work is the focus on this research study.

While ecological space shapes teachers and their teaching space, the reverse is also true. The type of work done today (or what is not done) shapes the current and future society. Regulation of teachers can, therefore, have a positive or a negative impact on society; teachers' work may change a rural township context.

According to Bangs and Frost (2012), the invisible nature of teachers' work refers to work that is undertaken by teachers but is unseen by the regulators of the profession. Books and Ndlalane (2011) cite moral development: creating a love for school and cultivating affection for learning by bringing out learners' humanness as invisible work. Drawing on the work of Bernstein, two types of pedagogical styles of teachers' work have been explored which have been identified as both visible and invisible. In essence a pedagogical palette is craeted in which elements of

visible and invisible (performance and competence) pedagogies are combined to suit existing conditions.

Branson and Zuze (2012) note that inequities in teachers' work persist in the democratic South Africa. While international policies and standards were adopted, no consideration was given to contexts with severe socio-economic challenges or to how teachers in these areas have to adjust their approach to meet regulatory requirements. The impetus for educational transformation in line with global imperatives derives from the conviction that education is the backbone to grow the knowledge economy and prepare workers for a new era (Christie, 2008). The Netherlands provided R213 million over a period of four years to enable the South African Department of Education to empower teachers (Ramdass, 2009).

Teachers working in contexts where students come from low socio-economic backgrounds require support. South Africa took on board the challenges of globalisation and educational policy became peppered with globalisation jargon such as inter-relatedness, innovation, on-going learning, the network community and the borderless world, to name but a few. In keeping abreast with trends, educational reform became synonymous with progress and modernisation in response to the pressure to "globalize or fossilize" (Vongalis-Macrow, 2008, p. 172). However, the 75%–80% of students that come from lower socio-economic backgrounds (Spaull, 2013) do not benefit as much as those from higher levels.

Severe socio-economic challenges are experienced across the African continent. Sehoole (2011) note that financial and social deprivation has negative implications for what happens at schools. Students from low socio-economic backgrounds affect teachers' work at different levels because of the poor learning standards they have been exposed to. Many areas in sub-Saharan Africa, including South Africa, are "severely inflicted with poverty, therefore they are significantly disadvantaged globally and in terms of their national priorities by the poor performance of the education sector" (Sehoole, 2011, p. 121).

Following global trends in education without addressing poverty creates imbalances that impact negatively on teachers. Teachers play complex social, educative and professional roles but do not have the power to critique or contest policy changes. The policy objectives of global agencies, which determine teachers' work, assume that teachers have limited capacity to interrogate the assumptions underlying globalised reforms; instead, they are reframed as being in compliance with international standards.

Teachers' work and educational change

Silva (2009) and Alexander (2011) note that changes and challenges should be examined in investigating the design and dynamics of schools. While there have been major changes in the state of South Africa's schools, there are also deep continuities with the past. In 2009, Limpopo, the Eastern Cape, Mpumalanga and KwaZulu-Natal were the poorest provinces in the country. Daniel, Southall and Lutchman (2005) note that the former homelands were part of these provinces and that the current state of schools reflects the legacies of apartheid education policies. Thus, the South African education system is embedded in the tensions, stresses and strains of a society where there is a continuous contradiction between its intentions and outcomes. This combination of history, contemporary dynamism and the character of the new education system itself inform the nature of education.

In seeking to transform the education system, the democratic government focused on three fundamental issues. First, justice and human rights were addressed by ensuring uniform spending on each learner. Second, teachers' salaries were standardised and, finally, the democratic government had to ensure that funding was injected into historically disadvantaged schools. However, the communities served by township schools remained unchanged (King-McKenzie, Bantwini & Bogan, 2013).

Changes in education impose additional pressure on teachers. A good example is the on-going curriculum change since 1994. Implementation of such change is resource-intensive and adequate school buildings and resources may be critical for its success. However, the key driver in successful curriculum change is teacher development (Bantwini, 2009, p. 180).

Swanepoel (2009) observes that, given that teachers' work is affected by educational change, school-based management should manage such change (p. 462). In schools with insufficient resources, teachers need to solicit resources; this in turn increases their workload.

All over the world, teachers adjust their teaching from time to time. They develop an "interpretative framework" during their career that is shaped and reshaped through interaction with the social, cultural, structural and political conditions which impact their day-to-day work (Kelchtermans, 2009, p. 260). This framework controls teachers' interpretations and actions in particular situations (context) and is modified as a result of meaningful interactions (sense making) with that context.

This is both a circumstance for and a result of the interaction and represents the preliminary "mental sediment" (Morrow, 2007; Kelchtermans, 2009, p. 260) of teachers' learning and development over time.

Weber (2007) noted that while South African schools were desegregated after 1994, they did not necessarily all become productive. According to Bangs and Frost, distributed leadership "gives teachers the responsibility for leading in particular areas of pedagogy, development of the curriculum and in responding to the social, emotional and well-being needs of pupils, unlocks innovative and untapped potential in teachers" (2012, p. iii).

The type of leadership required of South African teachers is informed by the national curriculum. This curriculum strives to provide subject content that addresses the imbalances of the apartheid era (Bangs and Frost, 2012). While government control applies across the global arena, change in South Africa has led to intensified control.

Negotiating teacher pedagogies through resilience in contexts of adversity

Teacher pedagogies cannot be successfully negotiated without a notable amount of resilience being amassed. Teachers always have to confront diverse dangers that are associated with the teaching profession. Teachers require resilience if they are to find joy in their work and remain in the job (Rizqi, 2017). Resilience refers to a person's ability to withstand or recover quickly from difficult conditions. It is a necessary condition to sustain commitment (Day et al., 2006, p. xviii). Worldwide, in both urban and rural schools, teachers who display adaptive or proficient functioning despite exposure to high levels of risk or adversity can be considered resilient.

The notion of resilience also features in the fields of psychology and psychiatry. It describes a person's ability to achieve well-being and thrive regardless of significant adversity. Teachers serves multiple communities and those that work with students from contexts of adversity have to adjust to these challenges.

In a context of diversity and stressful working conditions "teachers have to take their work home which is ironically not recognized as a paid hour" (Rizqi, 2017, p. 24). Some are vulnerable, while others are more tenacious and regard stress as a positive force. The latter build resilience. Endurance can be built using positive emotions such as joy, interest, contentment and love. These characteristics enable teachers in a stressful environment to cope

with the situation in order to enact their main role, which is teaching.

Rizqi (2017) notes that there are 11 official languages in South Africa and English is not the mother tongue of many students. This requires teachers to be equipped with appropriate skills. He adds that teachers' need to develop the capacity to protect themselves from negative and highly pressured environments (Rizqi, 2017). Thus, "to be considered resilient, an individual should be surrounded by stressors that might threaten his/her development" (p. 24).

In cases where students come from low socio-economic backgrounds, such as in the current study, resilience cannot occur without the presence of two essential factors, namely, capacity to adapt, and willingness to be exposed to risk or adversity. A well-functioning teacher who has not faced high levels of adversity, would not be considered resilient (Vanderbilt-Adriance & Shaw, 2008). "Resilience is not static, it is not a trait, and it is not a construct that can be directly measured. Resilience is a 'superordinate' construct that is indirectly inferred from two component constructs subsumed under its definition: risk exposure and 'good' adaptation" (Kim-Cohen, 2007, p. 272).

Transformation of teachers' work

Teachers have been confronted by many challenges both during and after the apartheid era. Pre-1994, the education system was defined in racial terms. In the democratic period, teachers are called on to embrace globalisation and create a knowledge society. For democracy to flourish, teachers' work means tackling the many apartheid legacies, as well as the educational reforms designed by managers, experts and technocrats.

While schools have opened their doors to teachers and students from all race groups, prior to 1994, spending on white learners was four times that for a black learner (Msila, 2009). The schools attended by the latter thus lack support material, facilities and classrooms. While parity in teachers' salaries resulted in some benefitting monetarily, transformation has had far-reaching implications for teachers' work as they were not part of the process and have not received proper training to bring standards up to par.

According to MacDonald et al. (2010), the task of homogenising teachers' work is a mammoth one as team planning ignores the differences created within classes (climate/abilities etc.) and differences with teacher styles. MacDonald et al. (2010) add that teachers execute their

professional duties according to their own efficacy, for example in the manner in which they handle curriculum needs and interact with the various stakeholders to whom they are accountable.

For some teachers, transformation has not changed the work they did before 1994, but it has added more work by introducing a host of curriculum changes. Naidoo and Muthukrishna (2014) note that the urgent quest to identify a suitable curriculum to transform South African education after 1994 (p. 271) led to much chopping and changing. The incongruences of the Outcomes-Based Education (OBE) curriculum and assessment were noted by education planners, leading to the adoption of the National Curriculum Statement (NCS). The NCS was subsequently reviewed, and the Revised National Curriculum statement was introduced which led to a new CAPS (Curriculum and Assessment Policy Statement) in 2012. Curriculum changes demand "training and retraining of teachers" as well as the "development of new materials and preparing curriculum facilitators" (Onwu & Sehoole, 2011, p. 124), with significant implications for teachers' work.

Concluding remarks

This paper has highlighted some notable similarities in the relationship between teacher experiences and teacher pedagogies between the local and the global spaces. This includes the examination of the nature and complexity of teachers' work at the global and local levels; pedagogical obligations on teachers' work in South Africa; teachers' work and educational change; the intensification of teachers' work; transformation of teachers' work; teachers' work in the context of adversity; teachers' work as "overwork"; and biographical backgrounds and teachers' work.

The review revealed that teachers engage in visible and non-visible work. Socio-economic challenges affect what happens at schools where teachers play complex social, educative and professional roles. However, they are framed as classroom practitioners, with no capacity to critique policy. Teachers' work is not restricted to teaching and learning to teach but can be defined as complex, multifaceted, value-laden enterprises against the global backdrop of the knowledge society.

Teachers' work in South Africa is controlled by strict bureaucratic management, policies and laws. While the status of the teaching profession has declined, teachers engage in many

professional activities in and outside their classrooms. It was also noted that the many changes in educational policy have placed additional burdens on teachers. Moreover, teachers' work in the context of adversity, especially in rural settings, appears to be undervalued. Just as teachers' personalities and background differ, so do the characteristics of the school and the context in which they operate

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Exploring the influence of the school setting on quality of education in a rural context in South Africa

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Abstract

Quality of education and achievement of learners should be the commitment of every educational system. Yet institutions have their unique characteristics that either facilitate or hinder the achievement of universal primary educational goals. Individual schools therefore initiate their own mechanisms, unique or used by other institutions, to ensure quality in schools. This study focused on how school-based factors influence quality of education in primary schools. The great concern was the poor performance of learners in English and Mathematics. This study employed a qualitative design to gather systematic, comprehensive and in-depth information. Data were collected using focus group interviews with twenty Grade 6 English and Mathematics teachers. Data collected was transcribed, categorised and presented as themes with verbatim quotes from the participants to support the themes. The findings reveal that most teachers lack the requisite knowledge of English and Mathematics content to improve learners' performance. The findings show that quality and achievement challenges brought by the implementation of free primary education in King Cetshwayo primary schools in KwaZulu-Natal are still prevalent. Understaffing; insufficient syllabus coverage; overcrowded and deficient classrooms; and inadequate instructional materials are some of the factors that have impacted on the quality of education in schools. The study also found that there are inadequate teacher development programmes for English and Mathematics to regularly capacitate them on how to improve learner results in English and Mathematics. The study recommends that principals, teachers, parents and government need to put measures in place that will address quality challenges in schools to ensure the realisation and sustainability of Universal Primary Education and the Millennium Development Goals (MDGs). The study therefore recommends that the Department of Basic Education should ensure that teacher developmental programmes are conducted as frequently as possible at the cluster level, circuit and district levels to enrich teachers with pedagogical knowledge that they need to improve the English and Mathematics performance of their learners.

Introduction

The issue of academic performance of primary school learners in South Africa has been of much concern to all stakeholders (Khumalo, 2014). Many countries have come to realise that learners are the heart of educational processes and that without good learner performance, all educational reforms are destined to failure. Jaiyeoba (2011) argues that primary education is the foundation on which subsequent education is built. Consequently, the broad goals of primary education are aimed at preparing the individual for useful living within society and to progress to higher education. It can therefore be argued that education at primary school level is the key to the success and/or failure of the whole education system.

Performance of learners in basic education is considered a vital indicator of good schooling. Accordingly, the reported poor performance of learners at the basic level of education has not only led to public outcry, but educationists have also been increasingly occupied in the attempt to identify factors that influence performance of learners in primary education (Adane, 2013). According to Asikhia (2010), various states and governments globally spend a large share of their budget on the education sector, yet this does not yield desired results. Educators also complain about learners' poor performance in both internal and external examinations (Asikhia, 2010). This is of importance since academic performance of primary school learners in such external examinations has been used to determine excellence. The South African government introduced Free and Compulsory Basic Education in 1994 with the view to improving the quality of the educational system. Through the Free and Compulsory Basic Education Programme, the government seeks to ensure that all learners are equipped with the fundamental knowledge and skills that will enable them to be full stakeholders and beneficiaries of development (Department of Education, 2012).

Various researchers internationally and locally have investigated and found a number of factors that contribute to poor performance in primary schools (Ong et al., 2010; Pretorius & Currin, 2010). These studies have shown that the majority of primary schools which serve African children in South Africa still reflect the legacy of apartheid schooling: they serve low socio-economic communities, are poorly resourced and are often poorly managed. Further, classes

are large, and teachers are often poorly qualified (Pretorius & Currin, 2010). Additionally, the effects of poor academic achievement during the early school years often carry over to the adolescent years, with a higher proportion of school dropouts, behavioural problems and even delinquency among this population. Anamuah-Mensah (2007) attributed the phenomenon to the lack of effective supervision and monitoring at school, lack of motivation for teachers and inadequate numbers of qualified teachers to fill the teacher's place in overfilled classrooms.

Locating learner performance within a South African context

In the study conducted by Hoadley (2010) in the Western Cape Education Department, many of the research projects showed that little reading and writing was being done in classrooms, with a lack of textbooks for use emerging as the main cause. The researchers further found that, although educators were implementing forms of 'learner-centred' practice and co-operative learning, very little learning was taking place. The Khanyisa Baseline Project assessed a sample of Grade 3 teachers in their 24 schools in Western Cape, testing them on Grade 6 Mathematics and Literacy items. The results indicate the low levels of literacy and numeracy among this small sample of teachers (Hoadley, 2010). The introduction of other educational policies such as the Revised National Curriculum Statement, National Curriculum Statement and currently Curriculum Assessment and Policy Statement has also been aimed at redressing the imbalances of the past and improving the quality of education in South Africa. After all these attempts, it is so surprising that the Annual National Assessment (ANA) reveals a tremendous decline of performance of learners in Mathematics and English.

The worrisome problem in South African schools has been the observation that, in spite of relatively large investments made into education compared to neighbouring countries, increased inputs do not seem to match the observed learning outcomes (Chisholm & Wildeman, 2013). Both regional and international benchmarking studies continue to show that the level and quality of learning outcomes in South African schools tend to be lower than those of countries that invest significantly less in their schooling sectors (Moloi & Chetty, 2010).

Studies have shown that educator quality—whether measured by content, experience, training and credentials or general intellectual skills—are strongly related to learners' achievement

(Stronge et al., 2007). The study by Stronge, et al. (2007) on the relationship between educator quality and student achievement in Virginia reported that basic teacher qualification in the United States, as stipulated in No Child Left Behind Act of 2001, is certainly an important starting point in the critical role played by educators in students' learning. Ordinary least squares regression analyses and hierarchical linear modelling were used by Strong et al. to identify teacher's effectiveness levels based on qualifications while controlling for student-, class- and school-level variables. Based on student gains, findings by Stronge et al. indicated that effective educators were those with higher qualifications. The above argument implies that educators' qualifications lead to educator quality and competence which eventually improve learner's performance. This view is also echoed by Dobbie (2011) who found that educators' academic achievement, leadership, experience and perseverance are associated with student gains in Mathematics and English. These findings suggest that educator success can be predicted by his or her qualifications. Although we acknowledge that teacher's qualifications play a vital role in learners' achievements, there are teachers with few qualifications who produce good results (Khumalo, 2014). However, such cases are very rare and sporadic. Thus, educators who do not have professional and academic teaching qualifications are likely to have a negative impact in their teaching and learning of the learners.

Ochwo (2013) examined the importance of subject content on teacher performance. However, the author noted that the formal level of education of the teacher is not necessarily synonymous with quality or competence. In the same vein, Ochwo's classroom observations in different countries show that certain teachers have insufficient mastery of the subject matter that they teach. In addition, the author found that many teachers lack the pedagogical knowledge required for good presentation of the material. Therefore, besides professional training, subject knowledge plays a crucial role in teacher performance and has an impact on the quality of teaching. However, studies completed in two African countries, namely Tanzania and South Africa, show that teacher professional development is a predictor of student academic performance, especially in critical subjects such as Literacy and Mathematics. The studies found that more than three years of training had a positive impact on student performance in Mathematics. Similarly, studies in the United States have found that teacher professional development can impact student achievement (Fullan & Stiegelbaue, 2007; Raudenbush et al., 1993; Vainikainen, 2014).

Kanjee and Sayed (2013) argue for greater use of assessment for learning practices; they identify the lack of capacity of teachers (and support to teachers) in making effective use of assessment to inform teaching. Kanjee and Moloi (2014) argued that a single most critical challenge to address when dealing with effective use of assessments pertains to supporting teachers and schools in enhancing their use of assessment results to improve learning in all classrooms. In this regard, Marsh (2012) notes that although districts occupy a strategic position to support schools in developing a culture of data-driven interventions, one of the limiting factors towards district support for schools is the lack of capacity at that level. It is therefore important to highlight the significance of teacher competency coupled with evidence- based interventions towards enhancing assessment effectiveness and ultimate enhanced learner achievement.

Skinner's conception of achievement: A learning theoretical framework

This study is guided by Learning Theory that was developed by Skinner (1965). According to Skinner, achievement varies among individuals for a range of reasons. Levels of performance and aspirations of learners depend on factors that are linked to school environmental factors and socio-economic factors such as lack of education of parents and family income. Maicibi (2005) believes that a good environment should be provided by the home if learners must learn, if the school administration must be successful and if the school must develop. The theory further emphasises the importance of motivation of educators, involvement in learning by learners and involvement of parents in supporting their children's education. The implication of this theory to the study in relation to teaching and learning is that for teaching and learning to be effective and efficient in improving performance, adequate provision of teaching–learning materials and other study material need to be considered. Thus, the school instructional materials are also educational inputs, and they are of vital importance in the successful implementation of any curriculum. Relevant and appropriate textbooks, visual and audio-visual materials like charts, slides, tapes and so forth, are paramount in the teaching–learning process (Obanya, 2009; Isola, 2010 & Momoh, 2010). According to Nyipir (2010), the higher the status of a family, the more likely it motivates its children to learn and perform better. Skinner advised that for proper learning to take place, learning experience should be guided and appropriately controlled. This means the environment or the circumstances under which learning occurs should be supportive and conducive for effective teaching and learning.

Problematising academic performance of learners

Performance of learners in basic education has received much attention in the South African educational system. Every academic year when results are released, educational stakeholders raise concern about the declining performance of learners in Mathematics and English examinations. Overall, the analysis of the assessment tasks and tests show poor results in English and Mathematics. Extremely important are concerns pertaining to whether the educators are providing quality education and how this is reflected in the test scores of their learners. Poor performance has persisted despite it being assumed that schools have adequate and well-trained teachers (Khumalo, 2014). Odhiambo (2008) argues that there is the urgent need to undertake comprehensive evaluation of educators in public schools simply because their professional performance cannot be separated from their learners' achievement of expected outcomes. He adds that there is the need to invest regularly in the development of educators, as educators require access to continuous and effective updating. For this reason, the present study investigates factors that are responsible for the poor academic performance of learners in primary schools. In light of the outlined problem, this study attempts to respond to the research question: What role is played by teachers in the academic performance of learners?

Rationale behind the focus on the influence of the teacher on learner performance

It is envisaged that the findings of this study may reveal factors that influence the academic performance of learners in primary education examinations in King Cetshwayo District, KwaZulu-Natal. This exposition would help the King Cetshwayo District directorate to develop workable measures or strategies that are likely to improve the performance of learners in primary education.

The study would provide information that is likely to be useful for the purposes of all stakeholders in education in the district. It may also serve as a reference material for policy makers to consider in the design of programmes to pursue for basic education that might yield good results. It will thus assist in meeting the government Millennium Development Goals (MDGs) and Education for All by the year 2025—that by this year performance of primary learners would have been improved to 90% in English and Mathematics (DoE, 2012).**Research methodology**

This study adopted a qualitative approach in which group conversations with primary school teachers became a prominent feature. The purpose of a focus group discussion is to produce qualitative data to provide insights into the attitudes, perceptions and opinions of participants (Krueger, 1994). This approach to data collection was opted for to determine the factors that

influence the academic performance of learners in primary education examinations in King Cetshwayo District; it was also used to determine concerns of educators about the challenges of poor performance by learners on teaching and learning process in primary schools. Consent of participants was established and they were free to withdraw at any time from participation. Data and methodological triangulation were performed to enhance the validity of the study. Data was analysed by identifying the emerging themes across the full set of data received from the participants.

Study sample and related sampling techniques

The sample population consisted of one English and one Mathematics teacher in Grade 6 from each of ten primary schools in King Cetshwayo District in KwaZulu-Natal province in South Africa. In all, twenty Grade 6 English/Mathematics teachers (10 English and 10 Mathematics teachers) participated in the study. Random sampling was not feasible for the study since the researchers wanted to ensure that they obtained a sample that would be suited to the intent of the study. One of the objectives of the study was to determine how the ANA influences teaching and learning in primary schools.

The researchers adopted a purposive sampling technique to select English as well as Mathematics Grade 6 teachers (intermediate phase) at King Cetshwayo District primary schools as the population for this study. The researchers specifically selected these participants as they had in-depth knowledge of what takes place during the teaching and learning process. They could provide detailed data on learner performance in English and Mathematics. Given this background, it is appropriate to describe the purposive sample for the study as a "distinctive sample" (Fraenkel & Wallen, 2009), which is a sample considered to be typical of that which is being studied.

Instrumentation

Instrumentation refers not only to the description of data collection instruments but also to the way in which the instruments are developed and administered in the study (Fraenkel & Wallen, 2009). Methods of instrument manipulation are considered here as having an inherent bearing or threat to the internal validity of the study. The primary data collection source was five focus group interviews consisting of twenty teachers of English/Mathematics. An interview schedule for all participants was developed to guide the interview sessions.

Data collection

A researcher ensured that all participants from ten schools assembled at a central point for the purposes of data collection. The school where one of the researchers teaches was used as the venue in which participants and researchers assembled. Five sets of focus group interviews were held with two Grade 6 English teachers and with two Grade 6 Mathematics teachers. Each focus group interview lasted between 30 minutes and 2 hours; this is a common duration for focus group interviews.*Ethical considerations*

Ethical clearance for conducting the study was obtained through the institutional ethics committee of the University of Kwazulu Natal and all suitable consenting participants were recruited into the pilot study.

Findings and discussion

Data was analysed by identifying the emerging themes across the full set of data received from the participants. Analysing the data involved analysing and synthesising the information obtained from the focus group interviews with the teachers. The themes that emerged are set out in Table 1.

Table 1: Sampled teachers' responses and emerging themes

Benefits of Assessment Tasks	Teacher	"Assessment Tasks to me serve as a measuring stick in my classroom. It assists me to identify my teaching methods and techniques whether they suites my learners' understanding in teaching and learning in the classroom to improve learner results."
Lack of Mathematics and English support and knowledge	Teacher	"Subject advisers do not play their role for ensuring the functionality of teaching and learning in the schools. Such weakness and poor visit to give lead to learner poor performance especially in critical subject such as English and Mathematics."
In-service programmes to improve learner results	Teacher	"Among the challenges that we have is that there are no regular content workshops to enrich our knowledge when preparing for and also after administering assessments so as to improve learner performance. Therefore, more content workshops on how to improve learner performance are essential if learner results in are to improve."

Instructional leadership from the School Management Team (SMT)	Teacher	"To be honest with me regarding the preparation of in my teaching and learning I do not get any support from my principal and my Departmental Head. When it is time for test and assessment preparation and writing I am on my own looking for information from neighbouring schools on how to prepare my learners."

Benefits of assessment tasks

Conducting learner assessment tasks assists in the identification and ultimately addressing of learner problems is regarded by many teachers as the most critical contribution of improving learner performance in English and Mathematics. In this regard one educator commented: Learner continuous assessments serves as a measuring stick in my classroom. It assists me to identify my teaching methods and techniques whether they suites my learners' understanding in teaching and learning in the classroom to improve learner results.

Another teacher responded as follows:

Assessment tasks equips me with the style of teaching and learning for my learners. It also helps me with the format to set my internal question papers that are on par with learners' learning. Through testing, all learners all exposed in external testing in preparing them for the future.

Teachers revealed that assessment tasks help them discover their weaknesses and strengths in certain topics; they try to look thoroughly at their weaknesses and pay special attention to those when teaching, while not overlooking their strengths (but catering for both).

Curriculum specialists' lack of support and knowledge

The study points out that there is a dearth of English and Mathematics support and knowledge from the subject advisers (curriculum specialists) to improve teaching and learning in schools. Teachers believed that lack of English and Mathematics support and knowledge from the

subject specialists is a cause of poor learner performance in English and Mathematics. In this regard one educator commented:

> Shortage of English subject specialists is another challenge that causes poor performance in, because it is difficult for us in our school to get assistance when we need curriculum support due to lack of visit and support of curriculum specialists.

The role of curriculum, as emphasised by Asikhia (2010), is central to learner performance and any gap in this regard usually has consequences on both learner and teacher performance. Teachers emphasised that curriculum advisers do not come to their schools to give them support and knowledge regarding improving learner performance in English and Mathematics". This is how one educator added:

> Since I have started teaching in this school three years ago I have not seen any curriculum adviser to come and give me support as how to improve my learners' performance in English and Mathematics. My school is always performing poor because of lack of knowledge and support.

Teachers believe that regular visits of curriculum advisers that provide support and content knowledge in English and Mathematics in schools is imperative for improving learner performance. They suggested that the Department of Basic Education (DBE) should increase the number of curriculum advisers for the benefit of teachers to improve learners' performance in English and Mathematics.

Instructional leadership from the School Management Team

Regarding the poor performance of learners, the study found that there is a vacuum in terms of the different instructional leadership roles that should be played by the respective School Management Teams (SMTs); the SMT of each school should be contributing to improved learner performance in English and Mathematics. However, teachers complained that their SMTs do not take an active role in ensuring that teachers are given necessary support, guidance and sufficient teaching and learning materials to prepare learners. In this regard one educator remarked that:

> I think that the SMT needs to guide and support teachers concerning English and Mathematics preparation by ensuring that learning support materials are supplied in time at school. They must ensure that all learners have workbooks, and those workbooks are utilised for effective teaching and learning to improve learner performance.

Therefore, the SMT must ensure that the DBE supplies the school with more exemplars and other support materials like assessment guidelines and Annual Teaching Plans that talk to improving learner performance. Monitoring should be done to ensure that these documents are used properly to improve learner performance in English and Mathematics.

In-service programmes to improve learner performance

In relation to in-service programmes aimed at improving their English and Mathematics performance, teachers alluded to the problem that although workshops are sometimes conducted, there is not enough time to engage with the content. Lack of adequate training results in teachers struggling to discuss learners performance in English and Mathematics. In this regard, one educator commented:

> Among the challenges that we have regarding English and Mathematics is that there are no regular content workshops to enrich our knowledge when preparing for administering assessment tasks so as to improve learner performance. Therefore, more content workshops on how to improve learner performance are essential if learner results are to improve.

Teachers emphasised that there is the need for in-service programmes to capacitate teachers with knowledge in English and Mathematics; however, it appears that a key challenge is the capacity of the circuit or district to provide teachers with the training they require.

Conclusions

Teachers need to provide quality teaching and learning of English and Mathematics. However, the paper has shown that English and Mathematics teachers lack adequate expertise mainly because of inadequate support and knowledge from the English and Mathematics curriculum advisers. The SMTs also seem to lack strategies to monitor the implementation of curriculum in schools. Teachers need to acquire sufficient pedagogical content knowledge of these subjects. Further, they need to be afforded the opportunity of extra lessons for learners with learning difficulties. They must understand that learners have different learning abilities and furthermore, parents need to take and an active role and support the education of their children. Item analysis needs to be the eminent priority for schools after assessments have been administered. Item analysis serves as the basis for the development of appropriate intervention strategies that could address the issue of learners' performance in English and Mathematics.

English and Mathematics teachers need to scrupulously analyse (question by question) learners' scripts to identify the areas that need urgent attention in the performance of the learners.

Recommendations

Lack of adequate pedagogical content knowledge of English and Mathematics teachers to teach effectively is a challenge that leads to poor performance of learners in the ANA. Teachers should acquire a good knowledge of the subject matter. This will result in teachers teaching competently and confidently. A display of subject incompetence by an English First Additional Language or Mathematics teacher causes the learners to lose confidence, first in the teacher and then in the subject. Therefore, the DBE also needs to award bursaries to English and Mathematics teachers to further their English and Mathematics studies.

To improve English and Mathematical knowledge, the DBE should aim to ensure that every educator in the system has the basic content knowledge required to cover the curriculum that they currently teach. It is imperative that intensive in-service training that lasts for several weeks per year is required to equip teachers with the knowledge they need to teach effectively.

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Unearthing factors influencing curriculum implementation by SADTU Mathematics teachers

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Abstract

Reflections on perceptions and practices of South African Democratic Teachers Union teachers of Mathematics attending a conference are articulated in this article. The conference was attended by teachers from both primary and secondary schools. Both inter-professional and intra-professional development of the Trimensional Aggregate (Pure Maths, Maths Literacy and Technical Maths) of Mathematics are emphasised, along with classroom assessment and a broad spectrum of educational goals. Teachers from all districts in KwaZulu- Natal participated in a collaborative and networking experience providing prized material on Mathematics assessment and curriculum dynamics. Relevant stakeholders from tertiary institutes and governmental officials aligned to the Mathematics field provided the impetus to discussion on Mathematics being a vital springboard to increasing economic development in South Africa; teachers need to become operative communicators and regulators of curriculum delivery for this to be realised. Learners thrive under the control of agents grounded in a robust human effort that directs curriculum content in Mathematics at their schools. Participants of all phases put forward evidence of their challenges and impediments that diminish learner performance in controlled assessments. The findings from the focus groups offer treasured information that creates a link for regulating Mathematics and provides ways of modifying teaching programmes. . Findings at this symposium gave rise to recommendations for the adoption of all Mathematics forms as a measure of teacher self-regulation, assessment and remediation both via formal and informal activities.

Keywords: Inter-professional; intra-professional; teachers' perceptions; self-regulation

Introduction

The South African Democratic Teachers Union (SADTU) of KwaZulu-Natal hosted a Mathematics (Maths) conference aimed at familiarising academics, researchers and practitioners with the realities (both in primary and secondary schools) of this gateway subject. The primary objective of the conference was to highlight the critical need for Maths in our schooling system. In addition, it sought to highlight that if there is no critical emphasis placed on Maths, Science, Technology and Innovation will be abolished from our schools. Teachers concluded that by expanding our learners' thinking capacity, we will be setting up perpetual progression and expansion of all sectors in South Africa.

Relevant stakeholders attended, extending from novice to veteran teachers from both primary and secondary schools. Department of Basic Education (DBE) representatives and high-profile academics converged at the conference to get empowered and to empower one another through collaboration and networking about the status of Maths. The Curriculum and Assessment Policy System (CAPS) provided the framework for the deliberations. The teacher's repertoire of principles/strategies in Maths teaching and learning processes assists learners to think critically and become independent and self-regulated (Arends, 2001). This understanding was unearthed during focus group discussions with attendees and from presentations from influential speakers in authoritative domains in the DBE. The sources at the conference were also from tertiary institutions and the independent regulatory body, Umalusi, that oversees matric results in South Africa. The author observed that this conference hosted a **Trimensional Aggregate (TA)**[9] of Maths teachers from SADTU who teach Pure Maths (PM), Maths Literacy (ML) and Technical Maths (TM).

The premise of involving both novice and veteran teachers at this forum was to empower and get empowered about the effectiveness of Maths teaching in South African schools as a whole, not only in KwaZulu-Natal. The accountability of teachers in public schools is the same for all schools in the republic—irrespective of the unique challenges faced by the school in terms of diversity and inclusivity; urban or rural location; level of resourcing; and level of functionality.

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[9] Trimensional Aggregate refers to the three subsets of Math teachers which encompass, Pure Math, Math Literacy and Technical Math.

Teachers were presented with roadmaps or a compass about the nature and domain of Maths knowledge in their own trimensional space. In accordance with the relevant domains of knowledge, insight into the material and formal elements of the work of teachers was elaborated on. As stated by Maharaj (2019), the elements identified resonate with Morrow (2007) who separated the elements into seven categories. The content knowledge of Maths forms the first domain. Second is the pedagogical content knowledge of Maths, which is a unique amalgam of content and pedagogy that is exclusively the province of a teacher of either PM, ML or TM. It is the teacher's individual professional practice. The third is the pastoral domain—having "under the radar" knowledge of learners, including their unique characteristics. Fourth is the domain that appears to transcend subject matter—it irradiates pedagogical content knowledge but with a distinctive orientation towards a set of principles and strategies that illuminates Maths classroom management as well as the organisational skills adopted by PM, ML and TM teachers. The fifth prerequisite is vital for Maths teachers—the knowledge of educational context, including working with subordinates, management, governance, financing, communities and culture.

Sixth is the all-important knowledge about the CAPS content which forms the "tools of trade" for TA. The seventh domain of knowledge for a Maths teacher is knowledge of educational ends, purposes and values, and their philosophical and historical roots.

The rationale of this conference was to address the TA that serves the diverse and complex society of learners. The first task was to ascertain factors that directly contribute to poor performance in examinations by learners at primary and high school levels. The second was the important task of determining the reasons for learners choosing PM, ML or TM. The third was to find out the basis for teachers of PM, ML and TM having positive dispositions towards the teaching of their Maths content. Fourth, stemming from discussions at the focus groups, brainstorming sessions and academic addresses, was understanding how teachers handle CAPS demands and teaching and learner development. Lastly, also arising from the focus group discussions, teachers gave insights into the challenges they endure in the physical and social settings at their workplace.

The accountability of Maths teachers has shifted over the years—internally to school management and externally to educational authorities and the greater community (including parents and funders); each of the above concerns was extensively scrutinised by the TA.

Factors that contribute to poor performance in examinations

The CAPS objectives of Maths are manifold in that CAPS aims to include Mathematics-associated life skills to prepare learners to become independent and fruitful citizens in South Africa Learners are ubiquitously confronted with mathematical concepts, whether at home or in their community. This informal associative process varies from counting to weighing, measuring distance, timing, making choices and so on. In some instances, mathematical ideologies are used for survival processes.

Mathematics is a comprehensive term used for Pure Maths (PM), Maths Literacy (ML) and Technical Maths (TM). According to CAPS, the content of the TA of Maths needs to be attained by learners so that they can engage individualistically with mathematical concepts. At a foundation phase[10] level, PM is referred to as numeracy, but in both the intermediate phase[11] and senior phase[12] learners do PM. However, in the Further Education and Training Phase[13], TA is introduced and this is where learners are given individual choices for embarking on Mathematics at any of the three abovementioned (TA) intensities of the subject.

Pure Maths can be regarded as a mathematical science or a discipline in its own right whereby learners are exposed to theories in the language of specific mathematical terms and symbols. These use abstract associations whereby learners are expected to observe configured patterns and carry out integrated logical thinking. The ML option makes learners aware of the problem of focus and provides an understanding of the purpose Mathematics plays in society. It also offers learners the chance to practice mathematical concepts and relate these concepts in their day-to-day lives so that they can deal with the requirements of contemporary living. Technical Maths (TM) deals with basic mathematical concepts and their application in a planned and formal way. There are distinct levels of complexity in the subject content of the TA. Umalusi[14] has to provide statistics of performance in Maths on an ongoing basis, and the growing concern is the poor performance in PM and the increase in learners opting to do ML or TM. As argued by Okyere and Larbi (2019), teachers at this forum gave their perceptions on how and why learner performance in Maths was compromised. The problems that were

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[10] Grade 1, Grade 2 and Grade 3 learners form this cohort.
[11] Grade 4, Grade 5 and Grade 6 learners form this cohort.
[12] Grade 7, Grade 8 and Grade 9 learners form this cohort.
[13] Grade 10, Grade 11 and Grade 12 learners form this cohort.
[14] The independent examination body that oversees assessments that are regulated in South Africa.

outlined in the focus groups irradiated the daily setbacks and challenges teachers experience at their schools. The lack of suitably qualified people and insufficient technological resources and infrastructure were identified as pressures that teachers face in the execution of their teaching. Teachers' heavy workload directly explains the above concerns where, in some schools, teachers teach classes to meet the regulated workload; hence, not all classes receive quality service delivery. Unqualified and underqualified teachers are a further human resource concern because management has to deploy the "tools for task" with the manpower that is s supplied to the school. Third, teachers tend to shorten their stay in rural schools, preferring to be in urban or suburban schools; the departure of teachers for the city is a regular occurrence that plagues Maths learning ; there is a substantial volume of literature to support this. The above three major concerns raised by the focus groups serve as an indication of how and why the performance in regulated assessments is substandard and disappointing.

What influences learners in selecting PM, ML or TM

The CAPS requirements for different TA components of Maths differ both in content and complexity. The pendulum swing in terms of the curriculum demands between PM, ML and TM varies regarding abstract relations, accurate use of calculation procedures and the control of number sense which lie beneath the ability of learners that choose either of the TA to apply such processes and techniques prudently. Besides looking at CAPS content level variations from a cognitive understanding, one cannot discount prerequisite mathematical concepts, processes and skills. According to Kruger and Swart (2014), these prerequisites include the need to understand concepts of numbers and operations, algebra, geometry, measurement, data analysis and properties. Kruger and Swart (2014) state that processes and skills like those in the CAPS curriculum content for Maths, are aimed at enabling the use of mathematical knowledge in intricate and complex situations.

According to Kruger and Swart (2014, p. 214), breaking down Maths into various levels of concepts is linked to developmental levels. First, the content level necessitates a strong knowledge of counting and the use of basic operations. The second tier involves learners relating concepts in Maths to practical situations—thereby using their educational understanding to solve environmental problems. The third tier is the emotional level, in that learners need to adopt a positive attitude to Maths. Last is the contextual level whereby Maths is used in learners' daily lives. Unpacking these levels demonstrates that learners have to

develop to various levels to have the necessary tools available to participate in TA Maths. Kruger and Swart (2014) have separated the knowledge into three stages, the foremost being declarative knowledge which involves knowing the basic mathematical facts. Next, procedural knowledge requires learners to be able to utilise procedures or actions to resolve mathematical problems. Lastly, condition or conceptual knowledge requires the synchronised interplay of the above two knowledge levels to find solutions for mathematical problems. A learner's ability to utilise these three knowledge concepts depends on their cognitive level of development, based on how effectually or efficiently the skills can be grasped. TA Maths relies on suitable strategies that utilise assimilated or developed knowledge to allow learners to execute explicit mathematical tasks. Having acquired their own knowledge of concepts and processes (metacognition), learners can apply their knowledge to utilising complicated mathematical skills that require abstract thinking strategies.

Teachers asserted that several factors deter learners from selecting PM over ML or TM. Among others, these include learners' self-regulation where their metacognition skills need to be aligned to emotional, motivational and behavioural management and self-control processes (Kruger & Swart, 2014; Nsikak-Abasi, & Akanaono, 2017). Besides the conceptual development explained before, one can anticipate the need for learners to have the capacity to handle mathematical content knowledge. This begins at a concrete level, advancing thereafter through a semi-concrete level, then progressing to an abstract level requiring learners to work minus tangible devices. Contributory factors identified by the focus groups as to why learners fail to reach an abstract level pointed to support structures (including parents and peers) not being in place or adequately involved, and teaching strategies and methods failing to ensure the learner has a sufficient grasp of concepts and processes. A learner that has attained a lower- level cognitive knowledge becomes overwhelmed in solving mathematical concepts, skills and processes at a higher level.

Teachers expressed that learners at some schools in KwaZulu-Natal have to face extrinsic risk/systemic challenges. Even though the Annual Teaching Plan is regulated and learners should be exposed to all aspects of the skills, concepts and processes, there is the risk of unforeseen setbacks ranging from absence to changes of school/teacher. An absentee learner automatically is at a disadvantage because of the gaps caused by missing concepts.

Further, learners may face health or socio-economic challenges which worsens the burden of keeping pace and catching up with work that has been taught.

The various reasons for learners choosing PM to ML and TM can be separated into links that include both internal and external risk factors. The intrinsic and extrinsic barriers to mastering mathematical knowledge skills and processes also increase the permutation of learners choosing ML or TM over PM. Extrinsically learners are faced with systematic challenges at school or in their communities. The intrinsic barriers are embedded within the level of self-regulation of the learner, and deficits in their self-control can create a cognitive deficiency. The learner may thus find it difficult to diagnose a mathematical problem and hence there is difficulty in choosing a suitable strategy to solve the problem; this in turn inhibits the learner from selecting PM or ML.

Another significant contribution to this conference was the feedback from Maths teachers that if they are unqualified or underqualified, learners cannot be supported or taught adequately. This is an extenuating factor leading to learners choosing a watered-down level of Maths merely to achieve a pass at the end of each year. In the South African context, one cannot discount the quality of training that teachers were exposed to before 1994 (Maharaj, 2019). Hence, if the teacher training did not imbue erudite knowledge of concepts and processes, the learners are unfortunately compelled to learn from teachers that have insufficient or inadequate tools for their trade in the classroom situation. Learners that find the regulated assessments difficult to pass resort to disregarding PM because of cognitive distress from pressure to pass; hence we find the majority of our learners choosing ML and TM over PM.

Although I have mentioned many areas of concern and the lack of equality in the teaching of Maths, not everything is doom and gloom; the conference cohort made suggestions and identified encouraging notions about why teaching Maths is gratifying to them.

Positive disposition of teachers towards PM, ML and TM

Teachers from the various focus groups confidently noted that the community and stakeholders acknowledge them as rare assets at a school; Maths is necessary to transforming education that can support a dynamic and positive South African economy. Technologically oriented careers require Maths to qualify to study at a tertiary institution.

Teachers also added that the announcement of Maths results (symbols and pass rate) gives them the verve to take the subject to greater heights because their inputs to the growing economy are noticed and this is motivational.

According to the focus groups, teachers advocated the formation of scaffolding from professionals within the department of education as well as academics; this could build a knowledge and support base for Maths, and encourage inter- and intrapersonal professional development.

Findings that stemmed from collaborative focus groups, brainstorming and academic addresses contributed to the body of knowledge on how teachers manage curriculum demands (CAPS) in achieving teaching and learner development.

Above I outlined proposals from the focus groups for scaffolding of inter- and intrapersonal professional development among teachers. This directly engages with the South African Schools Act No 84 of 1996 which stipulates that Professional Learning Communities can be constructed within a school and outside the institution to enable teachers to engage in discussions, activities, professional development and positive self-regulation offering support for both novice teachers and veteran teachers.

Data analysis and discussion of findings

Emanating from the discussions, there were opposing views from teachers about belonging to a Professional Learning Community outside school. The majority welcomed the notion that there would be collaborative support for the framing of uniform assessment tasks. Those in favour of this community saw it to be cooperative and supportive of learning and exceeding the traditional assistance available to Maths teachers for acquiring/syncing regulated CAPS requirements on academic content and skills. It was also seen to help address pertinent transformational educational goals. Teachers in this cohort agreed that engaging with other skilled teachers that are teaching Maths would be an advantage because the interchange of information enables teacher development; the interchange would also help to bring teachers on par with their counterparts.As argued by Umugiraneza, Bansilal, and North (2017), undertaking to attain greater competency, , teachers can try new things, strive to learn from the experiences of their counterparts and work to adopt and embed the teaching of Maths practices that work best.

Professional Learning Communities will permit Maths teachers to improve the implementation of CAPS content through interactions with proficient teachers. The Annual Teaching Plan of CAPS is a process, not an event; therefore, Professional Learning Communities will enable the curriculum content to gradually be executed to ensure the fruits of success. The CAPS philosophies can be managed together in steps to maximise performance in Maths. The requisites stipulated by policy can be addressed through appropriate projects initiated by the DBE; the alternative is that accomplishment and achievement will fade away as Maths teachers struggle to manage competing priorities. The cohort also expanded on the notion that no matter how marvellous an educational idea or intervention is on paper, what matters is how this manifests in the day-to-day work of Maths teachers. Professional Learning Communities will be the relevant forum for enabling this manifestation.

Professional Learning Communities were recognised by the teachers to be a place where connoisseurs of Maths can display their leadership skills, which in turn will be conducive to transforming the teaching and learning of the subject. Problem areas need to be well-defined so that appropriate programmes can be identified and implemented by the Professional Learning Communities. To judge the readiness of teachers to carry out Maths teaching, the cohort agreed to create a leadership implementation plan. Teachers would be assessed in terms of their capacity to plan and deliver a CAPS-compliant Annual Teaching Plan. The innovative idea of creating a pool of available resources resonated unanimously with the cohort. Such a resource pool was seen as serving a common purpose, being time-efficient and conducive to creating uniformity within structures in education. Another benefit of Professional Learning Communities that resonated amongst the teachers which is emphasized by Okyere, Kuranchie, Larbi and Twene (2018) related to their potential for providing support to staff, monitoring progress in assessments/tasks and problem-solving. They were also seen to be useful in adapting strategies within a team and strengthening professional development (particularly when teachers are in too much of a comfort zone among colleagues at their school). Particular importance was placed on Professional Learning Communities enabling novice Maths teachers to plan their assessments so that they can gain experience from the veterans in the subject.

Although Professional Learning Communities were seen to be beneficial, the adverse side to the formation of such a band of teachers was seen to be that schools that were resourced and producing outstanding results would underrate teachers at schools that did not perform well.

An additional perspective on Professional Learning Communities is that if teachers had underperforming leadership in their Professional Learning Communities, this would have a domino effect on teaching and learning. However, a solution was found to this legitimate concern.

There was a range of stances among the teachers regarding the need for upskilling and keeping abreast of trends and strategy shifts in Maths. Teachers alluded to different workshops and conferences that could be exploited to garner information that could unfortunately be used for transforming the subject through self guided initiatives.. However, it was agreed that there should be improved access to resources and technological support on Maths. This support comprises interconnecting common goals and designing suitable/appropriate learner and teacher support; such support will ensure the cascading of quality Annual Teaching Plan content.

Input from Professional Learning Communities would enable novice and veteran teachers to organise their lessons and methodology based on academic principles/skills. These provide professional leverage in the classroom, enabling the teacher to deal with social and personal difficulties experienced by learners. Professional Learning Communities to support teachers of Maths can be created either internally or externally. The team teaching approach received was supported by the majority of Maths teachers. Those in support vouched that Maths teachers that belong to team teaching projects benefit because it enables them to achieve goals. Team teaching is relevant to all teachers of Maths, irrespective of their expertise or skills; however, it requires teachers to work in harmony, no matter their level of experience. Such teaching invariably has a positive impact, improving Maths learners' performance in essential academic tasks. Team teaching unwaveringly helps learners meet assessment requirements despite teachers engaging in various approaches and methodologies, and exhibiting a range of attitudes to the teaching of CAPS content.

Authorities must make a concerted effort to carry out ongoing in-service training with government and non-government institutions so that there is balanced knowledge for all teachers of Mathematics. This in-service training could be undertaken during school holidays, after school or at weekends. The emphasis on abstract and symbolic thinking that Maths demands from the TA will be given attention so that assessment results will improve.

A detailed explanation of teachers' working in a context of adversity is illuminated in a study undertaken by Maharaj (2019); this gives a detailed account of the injustices and unequal education adopted after 19 education departments amalgamated nationally into a single ministry. The imbalances in socio-economic circumstances and teacher training were ignored while teachers across the board were nevertheless expected to embrace the changes in the curriculum. The latter seemed to phase in a new educational approach, yet overlooked the quality of the basic and tertiary education teachers of Maths had received. The curriculum nevertheless specified a single regulatory benchmark for assessing subjects. The 2019 study made an urgent demand for authorities to adjust the imbalances by undertaking a needs assessment of schools (especially for teachers of Maths) so that results could greatly improve. Besides the contextual aspects addressed above, another common difficulty related to transformative change that teachers in South Africa face is challenging behaviour in the classroom. Undisciplined behaviour directly interferes with teaching and learning; the escalating tide of disruptiveness is multifaceted but teachers gave their opinions on the causes. The view was expressed that disruptive behaviour stems largely from dislocated family and communal life. The manifestations of behaviour problems arise from parental neglect and the basic/emotional needs of learners not being met. This in turn leads to emotional insecurities and a decline in respect for human rights, and also a decline in morals and values However, teachers did acknowledge that challenging behaviour differed from school to school and from area to area.

The negative effect of setbacks at schools was acknowledged in the focus groups; this added a new swirl on explanations from the cohort present for the poor performance in Maths at schools in KwaZulu-Natal. The curriculum content in Maths is not entrenched in the context of the culture and life world of learners; therefore the knowledge is not meaningful to them, resulting in poor performance. Interestingly, focus groups explained that their teaching was debilitated by those learners that cannot find meaning in the curriculum requirements— given overcrowded classes and the difficulty in conveying subject content at an appropriate level, especially when required support is not to hand.

The organisation at schools also seems to impact on the position of Maths at both primary and high schools. Underqualified and unqualified teachers are deployed to teach the subject, either because of being appointed to a position or when schools annually rotate Maths teachers.

This policy undertaken by management has a long-term effect on the ability of learners to grasp foundational knowledge of Maths concepts and processes; hence, we find learners either abort their maths studies Maths or weave between ML and TM.

Concluding remarks

In this denouement, the outcomes of the reports tabled at this SADTU conference achieved its ultimate goal in that concerns were raised and inputs were obtained from teachers. Inter-professional development came from keynote speakers, feedback from teachers and suggestions from the academic forum; this was enabled by interactions in focus groups. The union has thus been able to increase collaboration and networking at a professional level to enable Maths benchmark tests to obtain a higher pass rate in future. Teachers across the province of KwaZulu-Natal will be engaged in ongoing workshops and training to improve their knowledge and insights into mathematical difficulties. This will change their self-regulated attitude towards CAPS requirements in Maths and in so doing improve learner performance.

This consultative process, timed for the beginning of the school calendar, certainly allows for substantial and effective remediation of Maths Professional Learning Communities. I also believe findings resonate with the development of compliant Annual Teaching Plans that ensure suitable assessment strategies and methodologies. In my opinion, the Maths classroom is a system on its own comprising a set of interconnected elements, each with its own structure, dynamics, and control; this transformational process is the face of teaching Maths. Each teacher of Maths designs their own lessons in executing their work that resembles a fixed procedure. Each fixed procedure is aimed at the knowledge of the Maths teacher of the regulatory requirements and their state of compliance with policies and laws.

Whether novices or veterans, the attentiveness of teachers to achieving their goals and overcoming their shortcomings will be affected by their level of self-regulation. This will ultimately affect their success and accountability in meeting the CAPS requirements.

Both in primary and secondary schools, the teacher of Maths is directly involved in the essential constituents of controlling this subject they teach.

They are measured by their self-regulation, and Maths assessment and remediation measures—via both formal and informal activities. To take their subject teaching to greater heights, the teacher of Maths has to be capable of acting promptly and appropriately to fluctuating classroom situations and learner challenges.

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