Life Sciences Teachers Negotiating Professional Development Agency in Changing Curriculum Times

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ABSTRACT

This article probes teacher responses to three curricular reform initiatives from a South African situated contextual perspective. It focuses on Life Sciences teachers who have initially reported feeling overwhelmed by this rapidly changing curriculum environment: adopting and re-adapting to the many expected shifts. The research question posed is: How do teachers negotiate and reinterpret their professional roles and responsibilities in the continually changing environment? A qualitative research design engaged dialogically with 8 Life Science teachers from moderately resourced schools located North of Durban generating insights that were central to their shifting agency of their teacher professional development (TPD). Our findings show these LS teachers are resilient to the changing curriculum times; their collegiality and agentic actions allows for divisions of labour, sustainable ties and strategies for walking the talk. The article concludes by discussing whether these agentic forms of TPD can be generated across differing contexts that are less well-enabled. When productive TPD voice is not activated, curriculum reform paradoxically contributes to (re)producing the existing inequities of context.

Keywords: agency, curriculum, negotiation, teacher, professional development, voice

INTRODUCTION

A perennial feature of the changing schooling system, in developing world contexts, is the shifting goals of curriculum policy, in response to national and global forces (Taylor, Rizvi, Lingard & Henry, 1997). These repeated adjustments in the policy environment produce a kind of "reformativity" of perpetual teacher responsivity to curriculum shifts. These curricular policy adjustments recur at pivotal moments within a country's political landscapes and underscore their ideological, political and econometric, rather than pedagogical roots. Oftentimes the drivers of these discourses are motivated by attempts to look progressive, or meet globalisation performativity benchmarking.

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State of the literature

- Curriculum policy reform in South Africa
- Outcomes based education
- Curriculum and Assessment Policy Statement

Contribution of this paper to the literature

- Teacher agency as an emergent phenomenon of an ecological context
- Teachers responsiveness to curriculum reform in unstructured collaborative learning environments
- Features needed for the initiation of an informal professional learning community
- Distributed leadership provides a type of mechanism that holds this Professional learning community together

Sometimes the curriculum policy shifts are responsive to major theoretical and epistemological redirections, to "look modern" but ignore the localised situated specificities. Teachers are expected to deliver on the dictates of their curriculum designers. However, teachers too exercise a power over how they chose to interpret (or not) the policy reform culture within their school environments. This article focuses on the recurring reform initiatives of the post-apartheid democratic era which aimed to generate a break from the old oppressive curriculum regimes to address social inclusivity, social justice and development of learner potential. It will focus on how Life Sciences teachers choose to negotiate this space of multiple reforms initiatives directed at them and note the impact it has had on how it constructed conceptions of the teachers. Like all teachers, Life Sciences teachers frequently report feeling overwhelmed by challenges, difficulties, and anxieties during the process of adopting and adapting to any curricular reform (Singh- Pillay, 2010). Three post-apartheid curriculum reform initiatives form the policy environmental context of the study, the *Interim Curriculum (IC)*, the *National Curriculum Statements (NCS)* and the *Curriculum and Assessment Policy Statement (CAPS)* (further discussion below). The emphasis is not on the policy curriculum content *per se*, but on how teachers chose to respond to the policy framed interpretation of their professional roles and responsibilities. The critical question of the study reported here focuses on how do teachers negotiate and reinterpret their professional roles and responsibilities in the continually changing environment.

The three curriculum reforms Life Sciences teachers endured from 1995 to 2014 were the IC (1995-2007), NCS-FET LS policy (2006-2012) and CAPS (DBE, 2011). These waves of reform have ambitious goals for student learning which demands a change in classroom practice. The IC curriculum introduced a new regime of *assessment*; the NCS-FET was a strong new *epistemological reform*; and the CAPS was a *pragmatic re-assessment* of supporting teachers to enact State intentions.

The Interim Curriculum (IC)

During the IC wave of reform LS teachers were overwhelmed by practical work forming part of the Curriculum Assessment (CASS) requirements. Many LS teachers were not trained in practical work, they lacked experience, expertise in setting up and manipulating apparatus (Pillay, 2004; Samaneka, 2016), hence these demands were interpreted as challenging to enact. Concurrently LS teachers were expected to complete 17 pieces of CASS requirements, maintain a master portfolio and a portfolio for each learner. These stringent requirements were labour intensive, and added to the administrative workload of teachers (Dass, 2009). While teachers were still coming to grips with the IC curriculum, they were confronted with yet another policy initiative: the NCS-FET LS curriculum.

The outcomes based education (OBE) curriculum

The second wave of curriculum reform embraced OBE, included indigenous knowledge system (IKS), evolution and environmental studies. This reform saw the advent of many textbooks which were inconsistent with the policy (Naidoo, 2012), reflecting the lack of readiness of publishers and textbook writers to read the scale of change required. The first versions of the NCS-FET LS policy lacked sequencing of concepts, knowledge development and many concepts were repeated in Environmental studies, and Diversity and change (Dempster & Hugo, 2006; Sanders & Ngxola, 2010) and this made teaching and learning a laborious task. Furthermore, LS teachers were not exposed to experiential learning to incorporate IKS in their teaching. This wave saw three consecutive revisions of the policy from 2006 to 2008 (De Villers, 2011). These multiple forms of curriculum reform introductions generated into the system a perpetual reformativity culture. Teachers were continually being asked to deskill and reskill to adapt to the new initiatives (Samuel, 2014).

The Curriculum and Assessment Policy Statement (CAPS)

In 2011 the CAPS LS policy was introduced in grade 10. It is a specific decontextualized state-driven curriculum that restricts teachers' autonomy or agency as curriculum developers (Ramatlapana, & Makonye, 2012; Samaneka, 2016). This prescriptiveness was construed as supporting teachers who are seen/m unable to enact the intended reform. A practical examination paper became compulsory in grades 10 and 11 and multiplied the challenges LS teachers encounter in respect of practical work and compounded their administrative workload (Sameneka, 2016).

Departmental officials maintained that these reforms entailed minimal tweakings of the curriculum. In practice, teachers experienced several iterations of the curriculum as embodying a different role for them. These roles intended to generate empowerment, autonomy and agency amongst teachers to act in the best interest of their learners but instead required greater accountability resulting in teacher disenchantment and disempowerment.

The change teachers encountered raises pertinent questions such as how do teachers cope with and negotiate the multiple levels of changing reforms?

CONCEPTUAL FRAMEWORK

Closely associated with the negotiation and reinterpretation of teachers' professional roles and responsibilities during curriculum reform is the concept of agency. We adopt an ecological perspective on TPD agency, which sees agency as an emergent phenomenon of the ecological context through which it is enacted (Biesta & Tedder, 2007; Korthagen, 2016). This means that agency is something people do in response to a particular context to overcome and survive the harsh contextual factor. Agency will therefore always result from the interplay of individual efforts, available resources, contextual and structural factors as they coalesce in particular and unique situations (Biesta & Tedder, 2007; Tan, 2016). It is an embedded process of engagement influenced by the past (iterational dimension), orientated towards the future (projective dimension) and engaged with the present (practical-evaluative dimension). The above notion of agency illuminates that agency does not come from nowhere, but builds upon past achievements, understandings and patterns of action. Agency is therefore a dialogical process via which actors immersed in context engage with each other.

Conceptions of agency

Three conceptions of agency characterise the literature around TPD. The *iterational* dimension of an ecological conception of agency refers to teachers harnessing their life and professional historical experiences which influence what they see themselves to be, and how they chose to practice as teachers (Emirbayer & Mische, 1998). The *projective* dimension refers to imagined alternative possibilities for future directed action: for example, actions that reshape teachers' fears, hopes and desires that differ from the present or past (Emirbayer & Mische, 1998). These aspirational dimensions can be directed from the individuals' own choices, or circumscribed by the dictates of preferred action by policy. The *practical-evaluative* dimension of agency consists of a discursive material and relational aspect which is contextually situated (Biesta & Tedder, 2007). Discursive aspects of TPD have to do with ways of speaking and thinking about one's teaching actions, and encompasses both the role of inner (personal reflective) and outer (contextual and aspirational) dimensions in dialogue with each other. Material aspects have to do with the resources in the physical environment and relational aspects concerns the social structures and cultures that contribute to the achievement of agency (Naidoo, 2012; Samuel, 2008). This perspective of agency helps us to understand how humans are able to be reflexive and creative, acting counter to societal constraints, but also how individuals are enabled and constrained by their social and material environments. This type of agency gives teachers the freedom to respond and adapt during curriculum reform.

A change in classroom practice hinges on good-quality and effective professional development of its teaching force (Sedova, Sedlac & Svaric, 2016). Effective TPD integrates

teachers' inputs regarding what and how they need to organise teaching and learning opportunities for their learners (Morrow, 2007). Professional development input is sensitive to the pace of teachers' own ability to embrace change, and to affect their own learning about the curriculum change. Such TPD ought to be instructionally focused and connected to teachers' experiences (Lambert, Wallach & Ramsey, 2007; Lieberman & Mace, 2008). In addition, it should be directed to strengthen teacher commitment to their professional growth and increase their motivation to learn. We explored whether the elements of new policy reform have the effect of generating alternative forms of teacher action and agency across the three reform periods. We foreground the practical evaluative dimension of agency as it will bring to the fore how LS teachers choose to negotiate and reinterpret their professional roles and responsibilities in changing curriculum times. The practical evaluative dimension of agency is inextricably intertwined to the projective dimension and is shaped by the iterational dimension of agency. The discussion section of this paper below addresses how selections of the form of teacher agency for their professional development shifted over time, invoking different elements of the reviewed literature above.

Negotiating change

During these three waves of curriculum reform Life Sciences teachers' had to endure engaging and teaching two curricula regimes, twice, due to the overlap in their introduction of the new reform and phasing out of the old curriculum. In addition, during each wave of reform teachers were subjected to the 'once-off, just-in-time' cascade model of teacher professional development conducted by subject advisors (Singh-Pillay & Alant, 2015). It was assumed that armed with this professional development orientation, teachers can then change the way they teach. The 'once-off, just-in-time' approach to TPD treated teachers as homogenous: it ignored the different experiences, training, contexts and learning needs of teachers and their learners (Singh-Pillay & Alant, 2015). A 'one-size-fits-all' approach of TPD bounded teachers in a culture of 'robotic script following' that did not suit their needs or the needs of their learners. Rather than creating a platform where teachers could deepen their knowledge, practice and learning the current cascade model of TPD negated the variations of how teachers teach and how they and their learners learn. Such policy approaches, to curriculum reform should be understood in historical context. The new regime wanted to mark a sharp shift from the past apartheid conceptions of curriculum. They however, underestimated the scale of what TPD encompassed, instead believing that teachers' support of the ideological and political goals of the curriculum interventions would be adequate to drive implementation. The new curriculum embedded elements that embraced social justice and democracy in all subject reformulations of the curriculum, and an OBE agenda. The vast majority of teachers, trained to be simply technicians of the former apartheid era, would have to engage major professional re-directions to enact this idealism.

METHODOLOGY

Design

An interpretivist qualitative research design was used to engage dialogically with 8 LS teachers from schools located North of Durban in ways that generated insights into how they negotiate and re-interpret their professional role in an evolving curriculum terrain.

Data Collection

The Prospects ward Life Sciences teachers' data based was used to purposively select participants. The selection criteria used were experience in teaching all three Life Sciences curricula (IC, NCS-FET and CAPS) post 1994. There were only 8 LS teachers who have taught all three LS curricula, hence only they formed the sample of the study. These are qualified LS teachers teaching within the Prospects ward (pseudonym), who had attended the implementation workshops provided by DoE. These teachers teach in moderately resourced schools. These 8 LS teachers have been teaching LS for more than 20 years. Data was collected in 2007, 2008 and in 2011/2 when these teachers enacted the IC, NCS-FET and CAPS LS policy respectively.
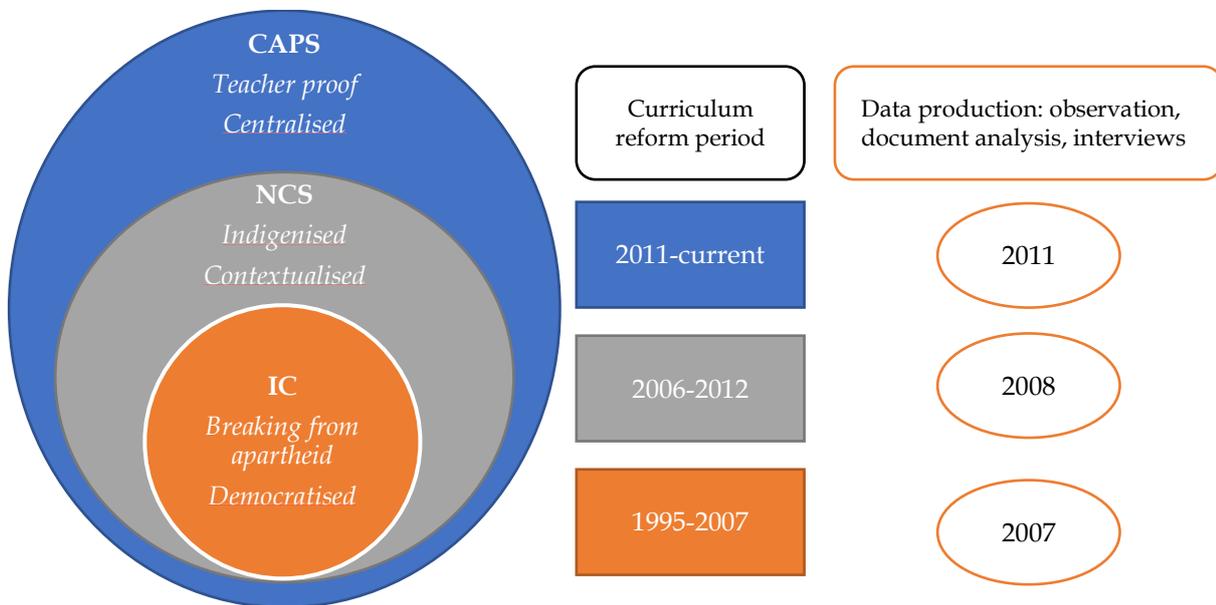

Figure 1. Showing curriculum reform and data production period

Ethics

Permission was sought from the relevant gatekeepers to conduct the study. The main research instruments used to produce data, for this study were classroom observations, document analysis and interviews. For the purpose of this paper we draw on data generated via the post observation interviews only. The data from the classroom observations and analysis of the lesson plans contained in the master portfolio served as probes for the interview.

Stage one of data production involved classroom observation. The lessons were video recorded as they capture non-verbal data (body gestures, facial expression, and tone) that audio recordings cannot or that the observer may miss. Using video recordings allows for repeated viewing and checking, reinterpreting and analysis (Merriam & Tisdell, 2016). The camera focus was directed on the teacher activity to capture their enactments of the curriculum in practice. The video recordings were transcribed and sent to participants for member checking. The teachers' master portfolios of classroom work which included both formal and informal assessments also constituted the data set giving insight into the planning logic of the teachers' intended pedagogy and assessment practices.

Stage two of data generation entailed in-depth face-to-face interviews with the LS teachers' whose lessons were observed. The focus of the interviews was directed towards teachers' reporting of how they negotiate and re-interpret their professional roles and responsibilities as well as exercise agency during changing curriculum times. During the interview teachers were asked about their experiences in implementing each of the 3 curricula waves of reform, what strategies they used to cope with the new demands being made on them, did their role as teachers differ during each reform period and how, what did they do to cope with the new demands being made on them. Interviews allow for the probing of participant responses (King & Horrocks, 2016). Data was transcribed and sent to the LS teachers for member checking.

Data analysis

Data generated was subjected to inductive analysis. Content analysis was used for transcripts from the lesson observations and interviews to note the interplay amongst the practical- evaluative, iterational and projective dimensions of agency. Content analysis involved developing categories from meaningful words, phrases and sentences. In our analysis we first examined the situated contextual challenges encountered in the curriculum context and policy implementation context from the IC to CAPS (and then we interrogated how they coped with and responded to the change, what did they do or did not do). Initial coding on coping resulted in three categories: *division of labour* (collaboration, joint work), *sustainable ties* (collegiality, shared practice), and *walking our talk* (reflective practice/learning). These categories were eventually linked to the three waves of curriculum reform.

RESULTS AND DISCUSSION

Emerging themes of teacher engagement with curriculum policy reform

The three themes of teacher responsiveness to curriculum reform constitute this next section: these have been labelled as a "division of labour"; "developing sustainable ties" and "walking our talk". All names constitute pseudonyms for the participants.

Division of labour

During the implementation of the IC LS teachers were overwhelmed by the contextual challenges they encountered in terms of the poor training received for policy implementation, having to implement practical work, maintaining a master portfolio, and the burden of setting 17 pieces of formal assessment. Simultaneously their isolated practice compounds their workload, impinges on their time and makes them realise their lack of expertise in certain sections.

"After the poor training we received we were upset,… need to do 17 assessments, maintain a master portfolio and one for every learner,… the increased accountability is too much. We talked in the car park, the 8 of us from Prospects decided to work together…to pool our resources rather than work alone." (T1)

"There are 101 things expected of you, teaching, fund raising, extra-curricular activities, pass rate, discipline issues, or you are in trouble with…., I'm all for us forming a liaison to split our responsibilities. We know each other; we see each other at these workshops……so we should work together. All of us must commit to it …in this way uniformity of standard will be maintained. We will all share. We don't know everything…. improve teaching and learning and grow together." (T7)

"The demands made on us as teachers has increased, I can't cope with all the extra marking, 17 pieces times 46 learners, that's a bit much, I must still set all 17 pieces of CASS work. I teach other subjects not only LS to make up my workload, each subject has its own requirements." (T5)

The strategy these teachers adopted was to not see themselves as isolated entities (practical evaluative dimension of agency in response to contextual challenge), but part of a collective team who had to divide their labour of responsibilities across the school responsibilities. In this way each could strategise their own ways of dealing individually and collectively with the tasks required, supporting each other. The school system as a whole was what they worked to function in the best interests of all, drawing from the baseline of resources that existed already within their own school environment.

What comes to the fore via the above excerpts is the interplay between the contextual conditions (*poor training, CASS requirements, 101 things*) and the personal and professional

biographies (*improve teaching, maintain standards, supporting the Prospects ward*) of these teachers. It is an awareness of the self (*we don't know everything*) and the harsh curricula environment (*poor training, 101 things*) that triggers action. This means, that the interplay between contextual factors (i.e. practical evaluative dimension- embodied in the inadequacy of the Departmental support initiatives to activate sufficient curriculum orientation), their personal and professional biographies (i.e. *iterational* dimension) initiates their projective dimension of TPD agency. The above excerpts demonstrate that agency is indeed an emergent phenomenon of the "ecological" conditions through which it is enacted. In other words, this agency is a configuration of the influences from the past (their experience, beliefs about education, their history within the Prospects ward- *iterational* dimension) which thrusts their attention towards the future (what can and must be done to improve teaching and learning- projective dimension), (*grow together, don't know everything*) by engaging with the present harsh conditions they experience (practical-evaluative) (*poor training, don't know everything*).

The collegiality amongst these teachers allows them to exercise their collective agency (*pooling together of resources*) to address the gaps in their individual teaching capabilities. It is this collective agency that bridges the divide between the supports offered by DBE and support needed by teachers to implement the intended reform. Collective agency helps these teachers to cope with uncertainties generated by the change in curriculum and to find paths to negotiate their new roles and responsibilities during curriculum reform. It is their collective agency that leads to the formation of collaborative sustainable ties that are propagated into the second wave of curriculum reform (NCS-FET LS).

Sustainable ties

The major source of uncertainties in teachers' practice during the implementation of the NCS-FET LS policy came from having to teach two curricula simultaneously (IC and NCS), the three consecutive revisions of the NCS-FET curriculum, the lack of guidance for the depth of the content, lack of exemplars on hypothesis testing, embracing IKS in teaching, having to teach evolution and environmental education and the uneven testing in different learning areas. Paradoxically these uncertainties allowed these teachers to create a collegial, inviting, safe and collaborative learning community with multiple ties. These ties were identified to reside not just within their own institutional circles, but in wider realms.

> *"This alliance formed allows me to experiment with teaching methods, I would not normally use. We asked the subject advisor for help with…… all he says... there is no data bank of questions: we must wait… We can't wait …we need to teach, our learners need good results …. The discussion Dharam had on IKS, from his masters study, helped me to teach IKS; Asha helped with 'designing minds on' and 'hypothesis testing'…"(T4)*

"There wasn't that feeling of being judged …..We share what we are struggling with environmental studies, IKS, evolution (hey, that's new in the curriculum)…… learning from each other and continue to learn. It was reassuring to try …new things in class…. We meet once a month to touch base…. plan…, discuss challenges…our successful practice. We even invited our colleague who is now lecturing to fill us in on current ….trends." (T2)

"With so many …changes… I'm fed up. I'm teaching both IC and NCS. I sometimes forget ….a teacher or facilitator or guidance counsellor. This group ….keeps me grounded… learn, grow and reflect on what to change and how." (T6)

The projective dimension of agency becomes conspicuous in the above excerpts, when teachers (re)consider how to chart a way to overcome their current dilemmas (practical evaluative dimension). The locus of agency lies in the teachers' actions as they try to generate alternative responses to the curricula problems they are encountering, drawing from a wider circle of influence: their postgraduate studies, their networks of teachers outside of the school, or an informal gathering of teachers beyond their own institution. This involves a sharing of resources and classroom-based teaching and assessment strategies which the departmental structures were unable to provide (*we can't wait*). The above excerpts reveal that these LS teachers engage in deliberative action (*meet once a month*), are committed to self-improvement (*continue to learn, grow*), scrutinize their practice (*what to change and how*) and are concerned about the well-being of their learners (*good results*). What is it that makes these teachers engage in these projective actions? What are such actions symptomatic of? Are their actions the potential levers for change? Do these actions represent new forms of teacher voices, engagements, and empowerment or are they signalling the kind of TPD that should be crafted to capacitate teachers to cope with changing curriculum times? What is the kind of curriculum policy reform that should be developed for deep TPD to be able to enact the new directions of curriculum reform?

Paradoxically, it is uncertainty generated by the curriculum policy that produced creative collective and widening spheres of influence on TPD. Collegiality (within our data set) is a strategic coping mechanism which builds on a baseline threshold teacher confidence. This allows these LS teachers to be confident about exposing their inadequacies (*not judged*), shifting from isolated teaching practices towards collaborative modes of TPD: sharing their knowledge, resources and skills for a common goal adapting and complying to curriculum implementation.

The multiple sustainable ties they forge in response to the curriculum challenges elucidate how they negotiate their roles and professional development during curriculum reform. Furthermore, these sustainable ties and their accompanying learning results in reflective practice which further enables how to "walk our talk" of TPD when yet another wave of curriculum reform confronts the school context.

Walking our talk

During the implementation of the CAPS policy even though teachers are facilitators of highly specific state curriculum with no latitude to serve as local curriculum developers, the teachers within our data set reveal that they have found a way to walk their talk as committed lifelong learners, who are interested in empowerment both for themselves and their learners. They have found surreptitious ways to generate this empowerment. The sustainable ties forged by these LS teachers create the ideal opportunity for them to connect with colleagues, to share their practice, examine, and reflect on their practice, with the aim of improving their teaching and promoting learning amongst their learners. They have developed a sufficiently robust "inside-out" strategy of seeking support and collegial TPD. Their prior collegial collaborative experience opened up their teaching for feedback on how to improve practice and to acknowledge what they were doing well. The excerpts below highlight this walking the talk.

> *"We team teach, observe each other's teaching, try new things, think deeply about how we teach, why we teach the way we do. We adhere to CAPS stipulation…. in our record keeping, but not classroom practice. I teach beyond the curriculum stipulation: I contextualize learning to help my learners and promote deep learning by having more learner engagements in lessons. It's about developing their LS knowledge and critical reasoning so I give more informal assessments to promote the kind of learning needed." (T5)*

> *"We have found a way to expose our learners to contextualized problem solving and critical thinking by giving them more informal assessments, why should we disadvantage our learners who are already disadvantaged by attending schools that are resource poor." (T6)*

> *"We develop supplementary materials that we use informally: give our learners additional tests and class exercises which we do not record for formal assessment. We have to conform to the assessment requirements stipulated, but at the same time, I don't want to disadvantage our learners, in terms of standards."(T8)*

The "creative ways" in which these LS teachers interrupt the restrictive impositions of the CAPS policy is uncovered. The above excerpts show that these LS teachers are walking their talk as they engage in reflection, examine and question their practice as well as defy the prescribed assessment requirements of the CAPS policy for the benefit of their learners (*contextualize learning, promote deep learning, giving more informal assessment*). Reflection allows for shared dialogue about the how, what and why of their beliefs and assumptions about teaching and learning. The above findings reveal that these LS teachers are resilient lifelong learners who are capable of adapting to changing curriculum times. We wonder if these teachers' self-reliance is a form of resistance to the increasing levels of prescription of CAPS? Or did their earlier experiences of the first two waves of reform assist them to ignore "outside-in" strategies to activate their curriculum change, and instead rely on internal

collaborative peer support. The aforementioned findings beg the question what will the net effect of their proactive agentic response be?

Our data highlights that the lack of adequate support mechanism from DBE during the three waves of curriculum reform created constraining conditions for curriculum implementation. These conditions (practical evaluation-dimension of agency) induced the pedagogical agency (projective dimension) of the 8 LS teachers within the Prospects ward to engage in strategic TPD activities. Their baseline threshold (*iterational* dimension) advances their collective professional development capital.

Conclusion

The finding of this research unveil how agency is an emergent phenomenon (*projective* dimension) that arises from the interplay of individual efforts, available resources (*iterational* dimension) as well as contextual and structural factors (*practical evaluative* dimension) that cohere together in particular situations. Our findings illuminate that these LS teachers have negotiated and reinterpreted their professional roles and responsibilities in an evolving LS curriculum terrain. They did not wilt and have remained resilient to harsh curriculum environmental conditions that are riddled by the lack of structural support for policy implementation. They negotiated and re-interpreted their professional role via collegial and collaborative multiple ties they forge in "unstructured learning communities". Their conspicuous dissatisfaction with the "outside in" mode of professional development binds these LS teachers who share similar beliefs about their practice in an informal professional learning community. Via our data we have seen that these LS teachers have a strong orientation as lifelong learners, are passionate about teaching and that their beliefs about teaching and learning are relentless and directed towards the best interest of their learners. These LS teachers are conscious of their different learners' needs, interests and talents at a micro level; as a result they make decisions in response to the different characteristics of their learners. Their beliefs about teaching and learning are not transient to meet the here and now of curriculum reform but rather they form an integral part of who these LS teachers are. The presence of the "professional discourse" that these LS teachers bring with them to their context via their strong orientation as lifelong learners and their beliefs about teaching and learning seem to expand the possibilities teachers have to use their beliefs in achieving agency via their informal professional learning community.

In an inconspicuous way our findings bring to the fore the core features needed for the initiation of an informal professional learning community such as collegiality, shared values and vision for teaching and learning, shared practice, supportive conditions, collective learning and distributed ownership/leadership.

Our finding confirms that collegiality (*alliance*) allows for the building of capacity to further teaching and learning (*we are all learning, we team teach*). Collegiality fosters camaraderie and allows for critique and improvement of classroom practice aimed at better student learning.

These teachers all share a common value and vision for teaching and learning which is centred on continued learning (*we are lifelong learners*). They have a constant need to keep abreast with current trend, upgrade and update teaching strategies. Their expression of trust and open communication (*not judged*) fosters collaboration as a result it contributes to the sustainability of the collective learning process, allows for reflections and assessment of their "achievements". This means that supportive conditions and interpersonal relationships must prevail for collaboration and collective learning to occur. It is the supportive nurturing conditions that determine the how, when and where learning communities can be forged. Additionally, these teachers shared vision and shared practices are key components to changing what occurs in the individual classrooms. Their shared practices create learning environments beneficial for building professional capacity through reciprocal peer interaction and interdependencies. The process of peer helping peer is more about not keeping practices private or self-contained and little about evaluation. Shared practice entails teachers acting as change agents through collegial support, peer coaching, and trust. Their collaborative effort to share practice stimulates and distributes leadership capacity across a broader base of the learning community, whereby all members of the team have the opportunity to share their expertise and participate in leadership roles. The distributed leadership provides a type of mechanism that holds this PCL together. The by-product of the shared leadership contributes to an increase in each teacher's levels of confidence, sense of achievement, satisfaction, and ownership.

Our findings show that first professional learning communities can be an effective form of professional development for teachers during curriculum reform to access, circulate and distribute knowledge about teaching and learning. This means PCL offer a very powerful way of engaging teachers in reflecting upon and refining their practice. Second, that learning within a PCL involves working together towards a common understanding of concepts and practices. Third, that these learning communities can be facilitated by teachers themselves. Fourth the core features needed for the initiation of these PLC are collegiality, shared values and vision for teaching and learning, shared practice, supportive conditions, collective learning and distributed ownership/leadership. Lastly that practice, teacher efficacy and teacher effectiveness can be informed through collegiality.

CONCLUSION

The challenge of establishing, sustaining and propagating professional development capital amongst teacher across schools is intertwined to their "Teacher Professional Development (TPD) capital" (that is, the multiple roles teachers play in their day to day job, their working context, lack of structured support, lack of consistency with regard to a shared vision for teaching and learning, lack of commitment to transformatory goals and time constrains). Our concluding questions are: How do we perpetuate this kind of professional development capital amongst practicing teachers? How do we rejuvenate their deep interest in teaching and learning that focuses on the needs of their learners? How do we get practicing teachers to embed their own professional development in their daily work? How

do we get practicing teachers to study their own practice and talk about it –identifying strengths and weakness? How do we get school managers to come on board to initiate and drive professional development capital amongst their teachers? Demanding strategies through legislated policy reform for TPD can only create target benchmarks. Ultimately deep sustainable teacher professional development will rely on teachers themselves establishing the quality of support and commitment to their own learners within specific contextual landscapes and geographies drawing on relevant resources to activate the qualitative meaningful change of the education system.

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