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Teacher culture and emergent context in two desegregated science classrooms in South Africa: A focused ethnography

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Framed within Schein's culture model, this study re-centres teacher culture as a key variable in pedagogic settings. Teachers' cultures or basic assumptions in a culturally diverse desegregated school are explored as a crucial dictate in the emergence of the context in which teaching and learning materialises. Through engagement in a focused ethnographic exploration, life sciences teachers' basic/fundamental assumptions in desegregated classrooms are identified and interpretively explored to decipher the context they precipitate. Deciphered assumptions included assumptions about social identity, relations, academics, pedagogy, power, and metaphysics.

Keywords: assumptions; context; desegregated classrooms; emergent; science classroom; teacher culture

Introduction

Globalisation and desegregation after the demise of apartheid has resulted in culturally diverse learning spaces in South Africa. The resultant cultural diversity in learning spaces has ushered in challenges for administrators, teachers, and learners in the context of change. Primarily, curriculum design has relegated the responsibility for managing curriculum and national cohesion solely to teachers. According to Emdin (2010), the tragedy of this unfolding reality is that teachers are left to their own devices to engage with learners, whose cultures and backgrounds may be unknown to them, in a productive way. This expectation exists in a context where the opening of schools to diverse learners does not automatically ensure mutual understanding and acceptance between teachers and learners and amongst learners themselves (Meier & Hartell, 2009). Despite these challenges, the provision of optimum teaching and learning conditions that will satisfy the needs of most learner populations in classrooms persists. So, whether culturally diverse classrooms become spaces for productive engagement or an alienating experience becomes a variable that is dependent on how the teaching and learning context is structured. Scholars posit that classroom experiences are both affected to a large extent by the teachers' culture and exposure to, as well as comfort with the culture of their learners (Emdin, 2010; Gay, 2018; Howard, 2016; Ladson-Billings, 1995). Thus, teacher culture becomes the crucial interface between the intended curriculum, and what is attained through classroom discourse, as structured by teacher culture.

Literature Review

In the preamble of his work on culture, Schein (2010) refers to culture as an all-embracing abstract concept whose ramifications permeate all facets of social existence. Whilst contending for cultural considerations in education, Gay (2018) locates culture at the core of all that we do in the name of education, whether this is curriculum, instruction, or administration. The historical emergence of "humanistic-cultural approaches" in science education (Aikenhead, 2004:12) also attests to the re-centering of culture in curriculum. Under this vision, which has received limited attention in Africa, learning is constituted as a form of meaning-making within a cultural milieu. The overarching argument in this scholarly work is that culture is critical in breaking up contradictory discourses, and a crucial component in the promotion of academic success and didactic reform in culturally diverse learning spaces.

Research indicates that attempts at catering for diversity in education have not succeeded due to limited cultural knowledge (McKinney & Soudien, 2010; Meier & Hartell, 2009), particularly the knowledge of teacher culture. This status quo prevails against a backdrop of scholarly work, which posits teacher culture to be the critical culture in the classroom cultural mix, as its amenability to diversity enables cultural synergies that influence teaching and learning (Emdin, 2010; Meier & Hartell, 2009). The implicit argument in the above scholarly work is that if teacher culture is deciphered, the ever-evolving realities of the pedagogic setting will be easily understood. Framed within this implicit argument is the notion that the strategic development of cultural knowledge about teachers that transcends contemporary teacher constitutions constitutes an education development imperative. Scholars posit the negation of this imperative to be one reason behind the limited change in schools and science classrooms (Emdin, 2010; Gay, 2018). This seems to be the missing dimension in South African science education research that has sought to explore desegregated contexts.

In this study, I acknowledge the intricate intertwining of knowing and being with a subjective critical twist. I subscribe to Emdin's (2010) view that who teachers are in the classroom constitutes the essence of their culture. Whilst advocating for a new metaphor of culture (Seiler, 2013) contends that research in the science classroom needs to proceed beyond the knowledge of teachers' perceptions to a dimension that explores their basic assumptions, which Schein (2010) regards as their culture. Two benefits of such an approach are that explanations

of the status quo can be gleaned, and if there are any cultural disjunctions, research can begin to moot means of evolving a responsive pedagogy. Such a pedagogy has the potential of circumventing a myriad challenges for science education, which largely arise from culturally-nuanced relational disjunctions. These relational disjunctions have been associated with lack of learner-interest and their perception of science as irrelevant and only limited to gaining of competencies in scientific literacy (Aikenhead, 2004); increased intolerance of difference, and the continued *othering* of learners who are culturally different from the teachers and the widening of the achievement gap amongst diverse cultural groups in South Africa (Meier & Hartell, 2009).

Analytical Framework

The concept organisational culture has been instrumental in theorising dynamics and agentic enactments in organisations. Learning spaces can be theorised as organisations, since they are social worlds constituted by expressive forms of human consciousness (Gajendran, Brewer, Dainty & Runeson, 2012), observable patterns of human actions (Vujičić, Kanjić & Čamber Tambolaš, 2015) and human networks structured by deeper meanings (Gajendran et al., 2012). Within organisations, humans enact under their respective local modes of rationality embedded within collectively held interpretive systems of meanings that bind agents in groups. Collective interpretive systems are culturally-nuanced and accord groups or organisations the ability to self-determine and execute observable actions (Schein, 2010). Thus, to understand organisations as systemic social systems is shunning objectivist and functional views of organisations. This implies going beyond observation of artefacts and values alone into the realm of subjective meanings held by agents in socio-cultural settings (Gajendran et al., 2012). It is Schein's (2010) contention that it is within this realm those agents' tacit *basic assumptions* or *culture* is located.

Adopting a root metaphor, Schein (2010) contends that basic assumptions are the essence of organisations as opposed to the functionalists' purview of culture as an organisational variable. Thus, organisations are organic systems of shared meanings, and alternative symbolic vehicles embodied with enacting utility. With culture as the functional essence of agency, enacting assumes subjective utility, based in an agentic interpretation of perceived reality. Such a constitution led Heracleous to posit that people "act out and realize [*sic*] their ideas" (2001:427), and resultantly co-construct their collective realities.

For this study, Schein's (2010) model for organisational culture analysis was adopted. The choice was based on the model's ability in integrating multiple perspectives in cultural studies. According to Schein, the first level encountered in cultural analysis is that of artefacts. Artefacts include all the perceivable products, artistic creations, socio-emotional values, codes of language, and observable rituals of a group. Schein (2010) hastens to point out that though artefacts are easily observable, interpretive reconstructions cannot be made from them. Attempts to decipher culture have to extend into the domain of espoused values, which capture agents' beliefs of what ought to be, as opposed to what is (Schein, 2010). Espoused values are based on workable solutions to critical problems a group faces, and can be regarded as the original values and beliefs that caused the emergence of the group. However, even after such analysis, Schein (2010) acknowledges the inadequacy of this level of meaning in capturing the full essence of a culture. He argues that espoused beliefs often leave large areas of enactment unexplained, as such overtures to decipher a culture must delve deeper to the level of fundamental or basic assumptions. Thus, according to Schein (2010) basic assumptions constitute culture, and once deciphered, enactments are easily understood and future enactments predicted.

Methodology

This study was conducted at Newbury High School* (NHS), a co-ed school in South Africa. Newbury was found in 1969 as an English-medium boys' high school. In 1999 the school was opened up to all race groups and in 2004 it became a co-ed school.

With regards to participants, I purposefully selected two knowledgeable Life Sciences teachers at NHS (Cohen, Manion & Morrison, 2011). Both teachers were female, one white, Ms Perkins* and the other Indian, Mrs Moosa.* They had been teaching Life Sciences at Newbury for more than five years, with Ms Perkins (the white teacher) having been at NHS for more than thirty years.

The methodology applied in this study was premised on the assumption that agents (the life sciences teachers in the study) were knowledgeable, autonomous actors who constituted and were constituted by their constructions. A methodology that resonated with this assumption was focused ethnography (Cruz & Higginbottom, 2013). The functionality of focused ethnography, according to Cruz and Higginbottom (2013), lies in its capacity to solicit information on distinct issues, situations, shared experiences or puzzling phenomena associated with limited elements of society in specific contexts.

Data Collection

Multiple data collection methods, which included observation and semi-structured interviews with the life sciences teachers, were adopted in this study. These methods served as the primary modes for data

collection. Secondary sources of data included life sciences teachers' autobiographies; and archival material from the school's administrative office, which included incident reports and statements of events. These secondary data were crucial in confirming and contrasting interview and observation findings (Cruz & Higginbottom, 2013).

Two semi-structured interviews were conducted with each of the teachers. Unlike observation and document collection, which were monological, interviewing was dialogic and involved communicative engagement to gain an emic perspective (Cohen et al., 2011) with respect to artefacts identified in observations. Using an interview schedule, the thrust of the interviews was to probe teacher understandings, establish why they had these understandings, and also why they practised as they did. Whilst interviewing gave me access to the spoken word, it had the limitation in that it could not afford me an opportunity to witness classroom practice. It was in this regard that three lesson observations were done in each of the classrooms.

Data Analysis

Informed by Schein's (2010) framework, the cursory level of analysis involved the capture of superficial organisational artefacts. Identification of artefacts was followed by the identification of espoused values. In identifying espoused values emphasis was on matching artefacts with life sciences teachers' oral responses. As recommended by Schein (2010), only values and beliefs upon which there was consensus were considered. Where the espoused values seemed divergent, in line with Schein's (2010) model for cultural analysis, such were not regarded as the teachers' espoused values. The next stage in analysis was the deciphering of basic assumptions. Deciphering the life sciences teachers' basic assumptions was inferential. Inferences drawn from the espoused values were thematically categorised and coded using Schein's basic assumptions, around which cultural paradigms form. From broad themes and the espoused values deciphered assumptions were coded. Such assumptions included assumptions about: humanity; social identity; relations; power; pedagogy; truth and reality; and those about time and space. It was from these assumptions that a description of the organisational (teachers') culture was done. According to Schein (2010), once tacit assumptions have been identified, there is a need to interpretively categorise them according to their influence on the research context. Interpretation was crucial in unravelling the anatomy of the emergent context from teacher culture. Interpretation was important in the sense that it also involved the building of abstractions of the data generated to generate theoretical inferences vis-à-vis teacher culture.

Ethical Considerations

Permission to conduct this study was sought and granted by the KwaZulu-Natal Department of Education, as well as by participants. Ethical clearance was also obtained. All names used in this study are pseudonyms, and any similarity that may be inferred thereof is merely coincidental.

Findings: Life Sciences Teachers' Basic Assumptions

Whilst Schein presents cultural analysis as linearly progressive, in this study, I present pertinent basic assumptions and associated artefacts and values.

Assumptions about Social Identity

Science teachers at NHS enacted with an assumption of a superior social identity. Teacher espoused values of eurocentrism transformed into assumptions of a superior social identity. From their life stories, both Ms Perkins and Mrs Moosa described how they had grown up and had been nurtured in mono-cultural environments, and noticed difference. Ms Perkins in her narrative professed that she:

> *Became aware that there were kids that were different; many spoke with an accent a bit different from us. They were a bit different from us* […] *I don't know if little children see colour, but I was so aware.* (Ms Perkins' narrative, 2014)

Relating her life on the family farm she recalled her initial contact and experience with black people, which seemed to have largely influenced her constructs about blackness:

> *The African (black) staff seemed to be fairly permanent and lived in a compound of 'little houses' on the western boundary … There were about six men and their families, mostly Zulus, but Gorlie the Induna (the chief) was born in Rhodesia (colonial name for Zimbabwe). Old Gracie lived in the top house with my gran, as her maid and Patrick the chauffeur lived close to the top house. At Rose Cottage, I can remember between one and three Zulu maids at times – a house maid, laundry maid, and a young girl to supervise the younger children.* (Ms Perkins' narrative, 2014)

Such formative experiences seemed to have had an influence on Ms Perkins' social identity and her perceptions of black people who, from her experiences, were constructed as subservient. Espousing this value, she described her life sciences learner expectations:

> *If, from Grade One, they have been in a Model B, what do I call it? white school, okay, with predominantly white and Indian teachers, I'm talking of black children now, then it's in their psych already, there is no problem at all, you don't have to distinguish at all, between one another, they are well aware of what needs to be done, their English is as good as mine. They write perfectly, then you can have a black kid coming tops.* (Ms Perkins, interview, 2014)

This value was persistent among the Life Sciences teachers at NHS to the extent that they even

acknowledged its usage in differentiating black learners. According to Ms Perkins, for the black learners it was:

> *which school they went to, for junior school, in other words how much English they have been taught in and that I see a big difference between, say a child coming straight from a township school an all-Black school and suddenly here. Absolutely you do notice, or I noticed* […] *I don't think they have a problem if they have our background, our culture, and our interests.* (Ms Perkins, interview, 2014)

She embraced this identity, though she contended in her biography that she "never thought much of black and white – not really relevant in our little world we were all born under apartheid and rarely questioned it." Those who questioned it she described as a bunch of "progs" (Ms Perkins, narrative, 2014). The expectation is that with over two decades after apartheid Ms Perkins would have done some introspection and reconceptualised the past and understood her position in the present. However, her statements during interviews indicated that she had not as yet questioned her attitudes and worldviews about the unjust past, and as such, lacked social consciousness.

Artefacts that sustained Mrs Moosa's assumption of a superior social identity were also gleaned from her biography, in which she described herself as having been "cosseted and protected by family and a community from the discriminations of an apartheid environment" (Mrs Moosa narrative, 2014). Relating her educational experiences, she exposed the socio-cultural exclusivity of her upbringing:

> *My teachers were Indian, my Principal was Indian and only the support staff (the cleaners and the janitors) were of a different kind, yes they were black. After primary school, I went to a high school of the same name, but by this time there were black learners and of course a couple of black teachers, who taught isiZulu to these black learners. However, the population in the school was still predominantly Indian.* (Mrs Moosa narrative, 2014)

Even though Mrs Moosa is Indian and legally qualifies to be a Black South African, she did not hide the fact that her formative aspirations were for a Euro-centric identity. She professed that:

> *Even though the environment was Indian, I know that our approach to things was English, and we were so encouraged to be the best that we can be for our families as well as the rest of the Indian populace. I think we were supposed to be successful Indians with a white identity and that would guarantee our success.* (Mrs Moosa Narrative, 2014)

This aspect of Mrs Moosa's life led me conclude that her social identity, as well as that of Ms Perkins', had converged. This convergence of cultural identities accommodated the resonance between cultural explanations provided by this assumption for the artefacts and values espoused in their classrooms. Despite their racial difference, and on the basis of the convergence of social identities, Mrs Moosa held the same tacit assumptions as did Ms Perkins, and NHS for her became our school. Affirming her as part of NHS culture, she was comfortable to use the pronouns our, we, and us during interviews.

According to Schein (2010), values transform into basic assumptions when they have sustained utility. It would appear that espousing eurocentrism, the life sciences teachers had internally rationalised certain basic assumptions as the normal and better way of being. In the latter sense, instead of accepting all forms of being as equivalents, the utility of eurocentrism and the associated material benefits made it a comparatively 'better' socio-cultural identity. Having embraced eurocentrism and reaped its benefits throughout their adult lives during apartheid, the teachers internalised this value. It was in this state that teachers' enactments were no longer governed by valuing eurocentrism, but by a deeply-held tacit assumption of a superior social identity. Acting under this assumption, the teachers believed that their role was to enculturate. This assumption explained Ms Perkins' irate remark that black learners needed to be like the other learners (Observations, 2014) and Mrs Moosa blaming them for their reluctance to take advantage of opportunities opened up for them by being in schools like NHS (Mrs Moosa, interview, 2014).

My interpretation was that the utility of this first assumption of holding a superior social identity underpinned the rationalisation of academic failure of some of their learners, particularly black learners. The failure of black learners to attain academic success had to be rationalised in a way that did not compromise the teachers' sense of competency, which they immensely valued. Thus, in order to reconcile their superior social identity and learner failure, the teachers, through the assumption of a superior social identity, ascribed and apportioned blame for failure on difference. This process of devolving blame from themselves for failing to create innovative ways to trigger the intrinsic motivation of their learners involved sometimes labelling the latter with relatively ambiguous descriptors, that included: behind, unmotivated, deviant, challenging, trouble, and backbenchers. Black learners were also negatively constructed as "having a concentration barrier; lacking a work ethic; less interested; lacking discipline, not wanting to hear" (Ms Perkins, Interview, 2014). Through this apportioning process, the teachers absolved themselves, maintained their superior social identity, and kept their sense of competency intact.

At NHS, a superior social identity and associated assumptions precipitated a context of cultural hierarchisation. The observed placement of learner culture at a lower tier than the teachers hinted of allochronism, and marginalisation. Inherent in teacher rationalisations was a fundamental attribution error, implying a value judgement

through which teacher culture was regarded as inherently good for all. The emergent context structured by this assumption is that of supplanting, rather than supplementing learners' webs of meanings, which is tantamount to denial of access.

Assumption about Academics and Social Relations

At NHS Life Sciences, teachers valued content and academic results. The utility of valuing academics and results over relations resulted in teachers holding the assumption that life sciences as a discipline and the dictates of rational efficiency mattered more than learners' understanding and their life-stories or experiences. Affirming this assumption, Ms Perkins remarked:

> *My consideration is they all have a common examination paper that they are all going to answer more or less this way. And wherever you are coming, 'this is what I want you to write,' 'this is what they are going to ask, so please, this is how to answer it.' 'That's what will be expected.' We work with the goal rather than the means or where you are coming from. What we are aiming for is you going in and passing that paper. This is the best way to do it* […] (Ms. Perkins, 2014)

This second assumption also explained the devaluation of the social and personal observed in the interviews as the teachers failed to recall learners' names (particularly black learners), even where they had taught them in years prior:

> *I will do it individually* […] *Okay let me say go to my last lesson. Patrick Pretorius,* sweet kid, stayed behind, offered to help, maybe most probably skipping lessons, but apparently his teacher wasn't upset. I sent for him to come down* […] *so cooperative, good like anything. He was joined by* […] *umm let me think of this black kid, can't seem to remember his name, he came and offered to help* […] *The kids who were working, Shayne Whitley,* also a white kid* […] *let's try and change my race group, umm* […] *let me see Shozi.* working very nicely, poor Molefe,* who didn't know what he was doing … umm the twins so alike they are, am trying to remember their names, one ends with 'la' and the other one 'le'* […] *Sabelo Ngindi* walked in late that's the length of the matter, settled in* […] *except I caught him once at the back he was trying to find what hypothesis meant* […] *well it's them* […] [laughing]. (Mrs Moosa, Interview, 2014)

What emerged was that black learners whose surnames could not be remembered were those who sat in the front row or participated in the same way as the white and Indian learners. Those black learners who the teachers could remember were cast and constructed with negatives. Understanding these artefacts ceased to be problematic once I deciphered that for Life Sciences teachers, social relations did not matter.

What was intriguing with the teachers' second assumption about academics and relations was its overt cultural and not racial bias. Where there was cultural congruency with some learners, or where they showed the potential to produce results, the teachers engaged more communally with them, regardless of phenotype. It was within this context that I qualified this basic assumption to be: academics mattered more than relations in the context of performance difference or academic limitation. In trying to understand this qualified assumption, I considered the teachers' espoused values. The life sciences teachers valued their subject knowledge, and as experts, valued learners who seemed to have grasped the transmitted concepts and had the potential for producing results. Thus, relations in this case had utility in the context of safeguarding the teachers' competency. What is disturbing with these abstractions is that the teachers seemed reluctant to invest in relationships that from which they did not stand to benefit.

The emergent context arising from the second assumption is one that constructs learners as ideal or less than ideal. Such a context entrenches cultural myopia, which manifests in both overt and covert ways as teachers enact with a superior social identity in an attempt to re-affirm their connectedness to their histories. With academics and results superseding relations the emergent context is affectively toxic and discriminatory. The emerging context from labelling and ascription of negative labels is one I interpret as a form of *reconstructed apartheid*. In this context, those negatively labelled on the basis of teacher's tacit assumptions have their sense of competence and autonomy violated. The hallmark of learning spaces materialising within this context becomes reductionism. This institutionalisation of reductive processes creates a context in which other ways of valuing, being, knowing and acting are denied validation, or mis-recognised at the altar of a perceived dominant worldview.

With regards to artefacts, the emergent context is associated with rigorous control measures, religiously enforced with the belief that it is the only way to help learners master the content to produce the valued outcomes. This context promotes the basics-only curriculum transmission didactics. This lean curriculum is meant to provide those constituted as less ideal with an academic survival toolkit. The emerging classroom architecture thus becomes one of segregation in a desegregated space in post-apartheid South Africa. Thus, obliviously, a context riddled with invisible lines amongst learners with different academic endowments is drawn. Classroom regimentation characteristic of such a context infringes on learner autonomy and negates their agency in affirming their competency.

Assumptions about Power

With regards to power, I was able to decipher two assumptions that informed the way teachers enacted. The first assumption was that coercion could bring conformity. The second assumption was that human action could be externally guided.

My observation was that, at NHS, teachers as subject specialists constituted and constructed themselves as powerful, having the power to teach and uphold the school's traditions through enforcement. The espoused value in the life sciences classrooms at NHS was the ability to control and enforce compliance. This espoused value seemed to emanate from their upbringing as well as from the macro-context, that is, NHS. Reading the statement of events/incident reports, class observation, and capturing teacher sentiments during interviews, it seemed that the ability to control and enforce compliance were primary in all that the teachers were doing in the life sciences classroom. According to Mrs Moosa, all that learners needed to do was: "Come to school, pay attention, do what is required" (Mrs Moosa, Interview, 2014). It seemed there were boundaries that learners were not supposed to cross, and which the teachers were prepared to defend. An incident report from Mrs Moosa's class brings out this aspect of the espoused value:

> *As I tried to get him to at least sit and hopefully do his test, he could see that he was clearly testing my patience* […] *I was not going to back off, because in my mind, this learner has pushed the boundaries; he was showing complete disrespect and challenging an educator. So I accepted his challenge with a, fine, come on, to which he slapped me.* (Incident report, 27 March, 2014; 8.45am)

Ms Perkins had no reservations in registering her frustrations with her class. These frustrations brought out the espoused value of the ability to control and enforce compliance:

> *It's stressful. I worry all the time* […] *I feel they are not going to make it. I don't know what it is, but sometimes I think it's a total lack of discipline* […] *I just thank God that Big Sho does not turn up for class: it's a shocking thing to say, but he will not allow the lesson to go on. I truly think I'm failing that class. Really, I'm getting frustrated; I don't know which way to go.* (Interview, 25 April, 2014)

Ms Perkins' remarks summed up the teacher-learner dynamic in Life Sciences classrooms. Sustained by the assumption that coercion could bring conformity, the Life Sciences teachers believed they could take charge.

Strongly held by the teachers was a third assumption about power and control that when learners failed to yield to the teachers' power they were sanctioned with detentions, and even with denial of access to lessons. With regards to the last power technology, during observations I noticed that Ms Perkins and Mrs Moosa would lock learners outside their classrooms, or kick them out of class during learning time. On the surface it seemed to be punishment, but when Ms Perkins (Observations, 2014) gave a learner the ultimatum "either you surrender the phone or you are out of my class!" it became evident that what was unfolding was a power game. In another incident, some learners were denied access into class for not lining up like the "others" (Ms Perkins, Observation, 2014). Such enactments seemed not to be corrective, but rather existed as displays of power. My argument is that if it was a corrective learning experience, learners could have been asked to line up and walk in, instead. All these incidents made sense when I deciphered the assumption that Life Sciences teachers held about power, and their capacity to enforce conformity.

Informed by the assumption that coercion could bring conformity, the teachers entertained and functioned with the notion that human action could be externally determined. Informed by this notion the teachers exercised modes of control that did not extend into the domain of affect. Using rules, policies, and rewards for virtue, and punishment for not fulfilling them, life sciences teachers believed they could guide human action. Related to their assumptions about social identity and believing that human actions could be guided, the teachers constructed themselves as custodians and propagators of the school's traditions. The primacy of classroom rules and the code of conduct in classroom governance were visible manifestations of this assumption. As learners appended their signatures to both documents on admission, this assumption was affirmed.

Whilst holding the assumption of being all-powerful, the teachers constructed themselves as the epicentre of power and brute force. The unintended emergent context generated one characterised by mirroring power-wielders, and the vacillated powerless. Such a context deliberately positions those who do not yield to teachers' power in ways that do not conduce the realisation of their competence. Such a context disregards the historicity of the formally marginalised learners, and fails to acknowledge their capacity to operationalise their power and chart their destiny. With the context framed by an assumption of localised power, learning science become in-authentic labour. The strictures of this emergent context pares opportunities for learners to embark on self or co-generated learning adventures, hence unintentionally threatens learners' opportunities to affirm their academic competency and assert their creative autonomy.

Operationalisation of the life sciences teachers' assumptions about power also precipitated differentiation and individuation of space. Unlike in other studies, where classroom hierarchies have been attributed to race (Vandeyar & Killen, 2006), in this study they were cultural. Teacher culture produced a culturally-nuanced, tiered system with two major learner formations; those whose cultural capital had currency with the teachers, and those whose culture was deemed to have no currency. Thus, teacher assumptions of power, like assumptions about social identity and academics, generated a context that was not only differentiating, but exclusionary. By being premised on a nexus of

differentiation and exclusion, this context fails to respond to multiple realities, and yields alienating learning spaces, an anathema of the rainbow dream in South Africa.

Assumptions about Pedagogy

Lesson observation and teacher interviews revealed the dominance of transmission in teacher pedagogical practice. Teachers talking and learners writing were regarded by the teachers as the most effective way for teaching life sciences. Responding to how they teach and how their teaching had changed with cultural diversity, the two teachers had this to say:

> *I feel in certain sections, you gonna have to teach. You have to stand in there and tell them: 'this is how it goes ...' you have to really explain to the learners. You have to actually find out where, what the learner actually needs to know … find out how you going to help and move on with the lesson … you move on with your syllabus.* (Mrs Moosa, Interview, 2014)

Further affirming the dominance of transmission, Ms Perkins posited:

> *If I'm talking to them, I want them to be looking at me or at the book, in other words, they are focused. It worries me if they are not focused. Then I will reprimand them, and say, 'excuse me I'm here, attention!'* […] *You have to tell them, 'I know what you need to know, you need to sit quietly, you need to be listening to me … and this is what we need to cover*.' (Interview, 2014)

Justification for holding such a value was given by Ms Perkins (Interview, 17th April, 2014) as she posited "sometimes you have to push well ahead … cut out the extras, don't worry about interesting them [...] cover the bare essentials." Thus, teaching in both classrooms was unilinear, punctuated by intermittent callouts for some learners' responses with the teachers being the sole arbiters of the curriculum.

Centralising the curriculum around the expert teacher made communication linear and bi-directional, that is, from teacher to learners and from some learners to the teacher. The emerging context from such observations is one that inhibits communal classrooms and propagates stoic and fact-laden science learning within individuated spaces. Such a context shuns collaboration and communal interactions outside those prescribed by the teachers and are postured towards force-feeding learners with science concepts. Such a context renders learners redundant, as they learn in silence; and creates an illusion of learners – especially those who may be culturally different from the teacher – as mismatched to schooling. In the ambits of this context, historical barriers persist amongst previously segregated learners, those who experience academic challenges suffer in isolation, and varied potentialities are never harnessed.

Life Sciences Teachers' Abstract Assumptions

The four assumptions presented above were the less abstract assumptions I deciphered about the life sciences teachers. However, in line with Schein's (2010) frame, I managed to extend my deciphering of teacher culture to other deeper and abstract assumptions to reality and truth, time, and the nature of space.

Other than reality and truth being determined by pragmatic debate and collective engagement, in the Life Sciences classrooms reality and truth were based on the teachers' individual reality. The fact that teachers were central to all classroom experiences reality became what they constructed or perceived.

Time orientation was pre-dominantly present to near-future oriented. Everything had to be chronological, extending to the near future, and compressed into calendar programmes that were laid out in the school year plan. Time was monochromic, where the mantra was 'one thing at a time'; with rewards for using time correctly, and punishment for wasting it.

At an abstract level, Life Sciences teachers' assumption about power resulted in a pedagogic setting with a high-power-distance index. Such a setting exaggerated notions of difference and explained the various statements which affirmed the '*we-them*' typology. This resultant typology supported the archaic *subject-object* discourse, through which the teachers assumed unlimited influence on technologies of control, and objects in their presumed domain of control. With regards to space management, my observation was that *safe distance* needed to be maintained, and every individual required their *personal* space to function.

Implications for Pedagogy

Final curriculum arbiters have the responsibility of negotiating the treacherous cultural terrains in cosmopolitan classrooms. For teachers to effectively fulfil this role there is need for them to pay attention to their own cultural assumptions as these direct their thought processes, motivations to enact and how they structure the context, a notion perfectly captured by Freire (1998), as he posits that freedom and completeness is not a condition located outside of man. Such introspection should not only foreground teachers' inconspicuous architecture, but should be a relational reflection on what they think about their own basic assumptions, juxtaposed on those of the learners they serve. This deliberate mutually-beneficially positioning requires constant and consistent, authentic critical reflection. Implicit in this critical reflection is the notion that once teachers know themselves better, and enact from such self-knowledge, the possibility for productive engagement exists, despite the challenge of cultural diversity in desegregated classrooms. Implied in this

study is that such a shift in teacher consciousness creates more productive pedagogic settings and atmospheres, characterised by a convergence of interests, with learners wanting to learn and teachers succeeding in teaching. Such a co-created context ceases to strive for normalisation of all in it, which usually perpetuates the marginalisation of those who may be culturally different from the teacher, but democratises the teaching and learning context. Implied in this envisaged context is that teachers need to come from the position of the basic assumptions above to allow teaching to be transactional, and the teaching and learning to be co-evolved, together with learners. Through such teacher-led and culturally-nuanced negotiations, all parties in the classroom can be galvanised for productivity through genuine commitment and involvement, rather than experience a form of enforced compliance.

Conclusion

The study explored and characterised teacher culture in a distinct anthropological mix. Despite culture having a historicity of its own, its utility in a context-bound responsive niche was observed in the Life Sciences classroom. Cognisant of the value of the notions above, the utility of this study is in capturing teacher culture and the emergent context precipitated by it, as intended by the teachers, or indeed by default. Also illustrated in this study is the possibility of focused ethnography and Schein's framework in cultural exploration, that is, beyond superficial artefacts, into the domain of tacit yet powerful and jealously-guarded assumptions.

Notes

i. *Not real names.

ii. Published under a Creative Commons Attribution Licence.

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