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DOI: http://dx.doi.org/10.18820/2519593X/pie.v38i1.17

e-ISSN 2519-593X

Perspectives in Education

2020 38(1): 242-254

PUBLISHED:

11 June 2020

THE VIEWS AND EXPERIENCES OF GRADE 10 LIFE SCIENCES TEACHERS ON THE COMPULSORY PRACTICAL EXAMINATION

ABSTRACT

With the introduction of the Curriculum Assessment and Policy Statement (CAPS) for Life Sciences (LS) in 2012 in South African schools, a practical examination has become compulsory in grades 10 and 11. The LS CAPS policy stipulates the types of practical work that needs to be conducted to develop specific process skills in learners. This case study explored grade 10 LS teachers' views and experiences of the practical examination. This study was underpinned by two constructs from Rogan and Grayson's theory of curriculum implementation, namely the profile of implementation pertaining to practical work and the capacity to innovate. Purposive sampling was used to generate data via questionnaires and individual interviews with grade 10 LS teachers at selected schools of the Umtshezi ward of Estcourt region.

The findings highlight how physical resources, the mismatch between the medium of instruction and the learners' home language, the culture of teaching and learning, teacher uncertainty and lack of confidence in performing practical work affect the kinds of practical work engaged in and their experiences of the practical examination. In addition, the dissonance between the intended LS CAPS policy document regarding types of practical work and the kinds of science process skills that ought to be developed in learners and the enacted LS CAPS policy document is exposed. Subsequently the disjuncture between policy intention and practice emphasises the need for continuous teacher professional development and a supportive school ethos.

Keywords: *capacity to innovate, implementation, Life Sciences teachers, practical examination, practical work.*

1. INTRODUCTION

Practical work is an integral part of the Life Sciences (LS) curriculum, and is used as an avenue to develop in learners science process skills, scientific knowledge, an understanding of the nature of science, increase motivation for learning science as well as understanding of the role of science in society (DoE, 2011). To hone in on the above merits of practical work, the Curriculum and Assessment Policy Statement (CAPS) Life Sciences for grade 10–12 was

Published by the UFS

http://journals.ufs.ac.za/index.php/pie

introduced in 2012 at South African schools. The policy brought with it a mandatory practical examination in grade 10 and 11. The CAPS LS was first introduced in grade 10 in 2012, and in 2013 and 2014 it was to be introduced at grades 11 and 12 respectively. This means that during the period of 2012 to 2014 LS teachers were involved in teaching two curricula as a result of the overlap period of phasing out one (the National Curriculum Statement (NCS) Further Education and Training Life Sciences for Grades 10–12) and introducing another curriculum (CAPS LS grade 10–12) (Singh-Pillay & Samuel, 2017). The mandatory practical examination is one hour (DoE, 2011). Teachers of LS are expected to ensure that the necessary chemicals, specimens, equipment and invigilators are available for the practical examinations (Yalcin-Celik, Kadayifci, Uner & Turan-Oluk, 2017).

This means that the LS teacher was responsible not only for the organisation, administration and implementation of the practical examination but was also expected to cope with teaching two curricula simultaneously. With regard to the aforementioned point it is worth noting that literature is replete with studies that illuminate that the implementation of a new programme or change in curriculum is affected by teachers' concerns regarding their teaching approaches, content knowledge (Fitzgerald, Danaia, & McKinnon, 2017;) and ability to access supportive professional development (Singh-Pillay & Alant, 2015). Thus, knowing teachers' views and experiences about the mandatory practical examination is crucial, as they are the ones who must implement the gazetted curriculum change. Regarding the abovementioned point, Burner (2018) emphasises that any educational change depends on teachers' views and experiences as these views and experiences reflect their pedagogic approaches and choices of materials, content and learner activities. It is also worth noting that in South Africa, studies have been conducted on the compulsory practical work that Physical Sciences teachers have to undertake since the introduction of CAPS (Gudyanga & Jita, 2019), however there is a paucity of research on the mandatory practical examination in Life Sciences. Therefore, determining teachers' views and experiences about implementing the practical examination will not only help identify difficulties, deficiencies and gaps in the curriculum delivery; it might also provide valuable information about what needs to be done in order to sustain the change as well as to ensure that the ideals of the new curriculum are realised. Furthermore, Life Sciences teachers' experiences should inform possible curriculum changes and improvements with respect to the kind and type of training that teachers need to ensure curriculum implementation. Hence, this study explored grade 10 Life sciences teachers' views and experiences of the compulsory practical examination and responded to the following research question namely**,** what are grade 10 Life Science teachers' views and experiences of the compulsory practical examination?

2. LITERATURE REVIEW

Practical work in science education is acknowledged and widely accepted as a key component in teaching and learning of science concepts (Kibirige & Teffo, 2014; Ramnarian, 2014). However, within the South African context, teachers' views towards practical work are poor and they engage in practical work merely to satisfy the minimum curriculum requirements (Kibirige & Teffo, 2014). The reason for teachers' poor views and attitudes towards practical work is suggested in Onwu and Stoffels' (2005) study conducted in Venda with 53 practising science teachers. They established that most of the teachers had little experience, meagre training and operated in large and poorly resourced science classrooms. Furthermore, teachers in some schools reported they are not confident in teaching science using practical work (Kibirige & Tsamago, 2013) as they were not groomed to do experiments and practical work when they trained as teachers. Consequently, teachers who lack confidence to engage in practical work resort to chalk-and-talk lecturing and demonstrations when teaching sciences (Lubben, Sadeck, Scholtz & Braund, 2010). Motlhabane (2013) in his study on Physical Sciences teachers' reflections on practical work noted many teachers in rural schools lack the necessary motivation to be innovative in their teaching practice pertaining to practical work. While many schools in South Africa lack appropriate equipment for teachers to conduct practical work. Muwanga-Zake's (2008) study showed that in many schools the principals kept science equipment for display in their offices, hence it is never used in the science classrooms. The study highlights that many principals lack understanding of the purpose of practical work and its role in the science curriculum. Muwanga-Zake (2008) also draws our attention to schools that have laboratories but where the teachers lack the skills and confidence to engage in practical work. Hence, these teachers who use practical work normally depend on textbooks and conduct experiments in a cookbook recipe format. Such teaching strategies do not inculcate an understanding of the scientific process and, furthermore, they often fail to inculcate conceptual understanding in learners (Muwanga-Zake, 2008). Poor resources (or the lack thereof) can limit the performance of even the best teachers and undermine learners' efforts to focus on learning.

Additionally, schools in South Africa lack laboratory technicians to support teachers (Onwu & Stoffels, 2005). Laboratory technicians manage laboratories, equipment, stock, set up equipment and they ensure its proper and safe use. In the absence of laboratory technicians, science teachers have to adopt the role of technicians, and much of their time is spent on setting up for the practical work. Consequently, teachers miss valuable instruction time and thus cannot teach the relevant content at the desired depth and/or provide the required guidance to learners during practical work. More importantly, technicians support teachers, which is particularly important for those teachers who may not be adept with the practical work. With training and experience, technicians become repositories of practical skills. Thus, less experienced teachers can effectively benefit from such technicians.

A further challenge in South Africa is that the language of instruction is mainly English, which is not the home language of many learners. Studies by Mokiwa and Msila (2013) as well as Kurwa (2016) demonstrate that understanding in science is achievable through languages other than English. These studies point to the relationship between teachers' content knowledge, their ability to bridge the gap between the language of instruction and the learners' home language in order to make science concepts and learning more accessible to learners.

Many schools in South Africa lack a conducive climate for teaching and learning and are in disarray or are dysfunctional. Research by Ileka (2017) has shown the effects of school leadership and management in promoting a positive teaching and learning climate, limiting interruptions during instructional time and holding learners accountable for their performance. She also noted the intertwined relationship among the quality of school management, quality of teaching and learner performance.

3. THEORETICAL FRAMEWORK

Rogan and Grayson's (2003) theory of curriculum implementation undergirded this study that explored grade 10 LS teachers' views and experiences of the compulsory practical examination. This theory was created with a developing country such as South Africa in mind.

Rogan and Grayson's theory of curriculum implementation foregrounds the dynamics tensions between curriculum implementation, teachers' capacity to innovate and forms of support

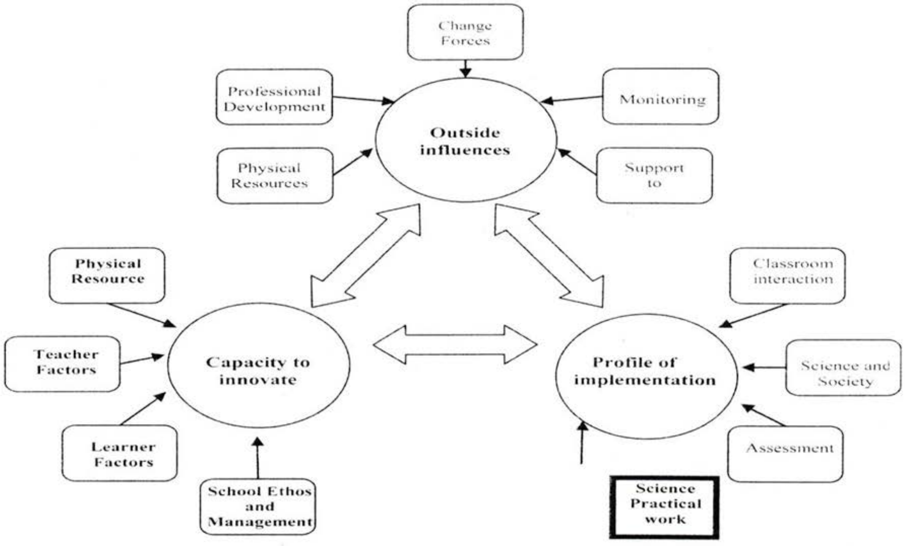

Figure 1: Framework of Curriculum Implementation (Rogan & Grayson, 2003)

during curriculum reform. Thus, it was used to understand the degree to which the LS CAPS policy goals were realised in terms of the implementation of the mandatory practical examination. The theory comprises three constructs; namely a profile of implementation, capacity to innovate and outside support. The three constructs together contribute to the ideal ecosystem for curriculum implementation. For this study the construct profile of implementation and capacity to innovate were used. As this study is concerned with the implantation of the practical examination, attention was only paid to the sub-construct on practical work for the profile of implementation. Table 1 reflects what comprises each of the four levels of science practical work in terms of types of practical work in which teachers engage.

As can be seen from Table 1, the levels of the sub-construct for practical work recognise that teachers can enact the curriculum in multiple ways. This particular sub-construct of the profile of implementation illuminates how the practical examination occurs in practice. As such, it will be used at an analytical level to determine where the school is in terms of implementing the practical work and examination mandate of the CAPS LS policy documents. The practical work sub-constructs were juxtaposed with the four constructs (physical resources, teacher resources, learner factors and school ethos /management) of the capacity to innovate. These four constructs were used to code the data during content analysis. The capacity to support innovation embraces all the contextual factors that enable or hinder the implementation of the practical exam and teachers' ability to innovate. Two constructs, namely profile of implementation and capacity to support innovation were used to monitor the extent to which the practical examination was implemented at selected schools.

Table 1: Profile of implementation for science practical work

Level	Types of science practical work
1	• Teachers use a classroom demonstration to help develop concepts. • Teachers use specimens found locally to illustrate concepts
2	• Teachers use demonstrations to promote some form of learner inquiry. • Some learners assist in planning and performing the demonstration. • Learners participate in closed (cook-book style) practical work. • Learners communicate data using graphs and tables.
3	• Teachers design practical work in such a way as to encourage learner discovery of information. • Learners perform guided discovery type practical work in small groups, engaging in hands on activities. • Learners can write a scientific report in which they can justify their conclusions based on the data collected.
4	• Learners design and do their own open-ended investigations. • Learners reflect on the quality of the design and data collected and make improvements when and where necessary. • Learners can interpret data in support of competing theories or explanations.

4. METHODOLOGY

This qualitative study adopted a case study design. This case study was confined to schools in the Umtshezi ward of the Estcourt region; therefore, the findings of this study cannot be generalised to all South African classrooms. While a case study design is construed as a limitation, Flyvbjerg (2006) uses single cases of experiments by Galileo, Newton, Einstein, Bohr, Darwin, Marx and Freud to show that human and natural sciences could be advanced by a solitary case. He asserts that what we learn in a particular case can be transferred to similar situations, so despite its limitations, a case study can further our insight into similar situations. Informed consent was sought from the university ethics committee, the KwaZulu-Natal Department of Education, school principals and grade 10 Life Sciences teachers. Participants were informed of the research protocol, assured of confidentiality and anonymity, that participation was voluntary and that they could withdraw from the study at any time.

Purposive sampling was used to select the 30 participants for the study, as they are people most likely to provide information in response to the research questions posed (Cohen *et al.,* 2018).

Two instruments were used to capture data; an open-ended questionnaire and semi-structured interviews. The open-ended questionnaire was designed with the assistance of university researchers and piloted with Life Sciences teachers who have implemented the practical examination. The questionnaire was piloted to check the clarity of the questionnaire items and to eliminate ambiguities or difficult wording. The outcome of the piloting indicated that the questionnaire items had good content validity. According to Cohen *et al.* (2018), a pilot study serves to increase the reliability, validity and practicability of the questionnaire. The questionnaire targeted biographical data as well as information on teachers' views and experiences of the practical examination. A semi-structured interview was used to further probe participants' responses to the questionnaire. The interviews were transcribed verbatim and sent to participants for member checking. According to Creswell and Creswell (2017), member checking involves returning the interview transcripts to participants and requesting them to verify their accuracy. Thereby giving participants the opportunity to elaborate, clarify or confirm aspects of the interview to ensure that participants' views, experiences and perceptions had been captured accurately during the interview. Thus, member checking was adopted to guarantee the credibility of the research.

The research question posed in this study was used for organising the analysis. The data generated was read several times before content analysis could begin. The constructs from Rogan and Grayson's theory of curriculum implementation were used during content analysis. Furthermore we focused on the level at which the teacher is operating for each dimension of each construct.

5. PRESENTATION OF RESULTS AND DISCUSSION

In this section, we present findings and discussions on grade 10 LS teachers' views and experiences pertaining to the practical examination.

Teachers' views on the practical exam

All grade 10 LS teachers raised concerns about the implementation of the practical examination as is evident in the excerpts below:

> *the practical examination stresses me… how are we expect to manage everything by yourself, set the exam, get the resources, sort out invigilators and where do you get resources if all schools in the area are expected to conduct the exam on the same day and time/ this top down approach frustrates me, we were not consult about this exam, I do what I can just to comply* T11 (interview)

> *They [policy and Subject Advisor] expect us to shoulder more responsibilities without the necessary support. I am one of two Life Sciences teachers at my school and the other teacher is a first-year teacher. I have to show she everything as the HOD is a math person. It's hard enough teaching the old and new curriculum, these are fancy ideas if you have the resources and support. In the absence of support like lab technicians, or time given or factored in to set up for the pact exams, implementation is going to be haphazard and will not happen.* T19 (interview)

The following excerpts from the questionnaire affirmed the above responses:

> *This is an impossible ask of teachers, especially if we were not consulted how can it work without training, resources, buy in from schools, principals. It will turn into a tick box activity with no real learning of process skills. There is no uniformity in the reform, in physics there is no mandatory practical exams, only practical that has to be done, so what is special about Life Sciences? I do the minimum to tick the box.* T7 questionnaire response.

The above excerpts bring to the fore the deep concerns grade 10 LS teachers hold towards the implementation of the practical exams due to constraining personal factors (added work load, lack of consultation, teaching two curricula simultaneously), contextual factors (lack of support for implementation at a school level, lack of resources, time constrains) and Department of Education factors (lack of training for curriculum implantation and lack of uniformity in mandatory curriculum requirements regarding practical work between Life and Physical Science subjects. These concerns reduce the practical examination into a tick box activity of compliance. The above finding concurs with of Kibirige and Teffo's (2014) study that showed that many teachers engage in practical work merely to satisfy the minimum curriculum requirements.

In a subdued way the above finding illuminates LS teachers' resistance, non-acceptance and negative view of the mandatory practical examination with that of Peskova, Spurna, and Knecht (2019) who assert that various forms of teacher resistance may block the implementation of curriculum changes, since responding to reforms is an interpretive act that is personal, contextual and interactive. The personal, contextual and Department of Education constraining factors become the barriers that LS teachers use to resist the mandatory practical examination.

Teachers' experiences of the practical examination

In this section teachers' experiences of the practical examination was organised as per the constructs for capacity to innovate, namely, physical resources, learner factors, teacher factors and school ethos and management.

Physical resources

Grade 10 LS teachers identified the number of learners in a classroom, lack of laboratories and lack of equipment as physical resources that alter their classroom practice and implementation of the practical examination. How these physical resources prevent the implementation of the practical work and the practical examinations are reflected in the excerpts below:

> *The classes have more than 60 learner per class, you don't get to know them or their needs, there is no laboratory, whatever equipment was sent to the school is locked in the store room, it is not processed so I can't use it, this area is very poor, I can't ask learner to bring things, I try my best to improvise. T3 (interview)*

> *It's a challenge to run the practical exams, I have to have many sessions for the exams, there are classes from A–G and each with more than 60 learners, you can't move freely in the class to watch learners conducting experiments, the apparatus is not enough to set many workstations, most of it is broken, you can't get money to buy chemicals for food test, or specimens e.g. Heart that are needed for the pract exam – you can't test those types of practs wanted by CAPS if there are no resources .I only do demonstrations and learner complete the worksheet based on what was observed.* T5 (interview)

The following questionnaire excerpts affirmed the preceding responses

> *How do you implement the practical exam in a school where [there] are not enough classrooms to accommodate the learners, equipment and chemicals for practical work are non-existent, Practical's are done theoretically as a class discussion.* T23 (questionnaire response)

The impact that the lack of adequate physical resources has on the implementation of practical work and the practical examination is confirmed by the above responses. Most schools in this study (27) do not have functional laboratories, equipment and chemicals to engage in practical work. Additionally, teachers in these schools must deal with overcrowded classrooms. The above finding resonates with Onwu and Stoffels' (2005) study which elucidated the lack of resources in schools hamper teachers' engagement in practical work. It is interesting to note that several curricular reforms have occurred in South Africa, but teachers are still struggling with similar problems namely, the availability of resources for curriculum implementation. The study by Grussendorffet and Booysen (2014) indicates that only 5% of South African schools were sufficiently resourced for CAPS implementation. In effect this means that 95% of our schools are not sufficiently resourced for CAPS implementation and raises questions about the readiness of schools and teachers for curriculum reform and implementation.

In the above school context, teachers are forced to rely on demonstrations and practical work is also undertaken as a theoretical discussion and are consequently operating at level one on the profile of implementation for practical work. This means that physical resources (or the lack thereof) within the school context becomes a mechanism that determines the types of practical work done and the opportunities for learners to engage in the learning of science process skills as set out in the CAPS LS policy document. If the teacher and their school are functioning at level one, the inference is that learners are being exposed to basic science process skills and not the high level science process skills such as to investigate, reflect, analyse, design, critique and synthesise as set out in the CAPS LS policy document. The above finding is consistent with that of Ramnarain (2014) who emphasises that many schools lack basic science equipment that influences the kinds and types of practical work done at these schools and the kinds of learning that occurs.

Learner factors

Data from the questionnaire and interview illuminate the rational interplay between language of instruction and learners' home language and its influence on teaching, the implementation of practical work and the practical examination. The mismatch between learners' home language and the language of instruction and its resultant impact on the implementation of practical work and the practical examination is made visible in the excerpts below:

> *Life Sciences has its own language, it is difficult, my learner struggle when I teach in English, I am forced to code switch so they can grasp concepts – the reason why they perform poorly in the exams is because it's in English and they don't understand what is being asked or how to respond, therefore in my teaching, practical's and practical exams I do demonstrations so they learn to recall, identify, list describe. In this way I cover exam type questions they can understand and pass*. T25 (interview response)

Responses from the questionnaire support the above excerpt:

> *The textbook is in English, the exam is in English for our learners, English is not their first language – it's hard for them, it affect their understanding, and even harder for me to try and explain terms, concepts, plus the terms in LS are difficult and abstract, we don't have words for many terms or equipment in science, therefore demonstration are best as leaners see what is happening and can describe what they see. T17 (questionnaire response)*

From the above excerpts, it is visible that the discourse of LS, the language of the textbook, language of instruction, the learners' home language and the absence of vocabulary for scientific terminology in the home language of the learners affect the quality of teaching, the types of practical work engaged upon and the kinds of science process skills learnt. To facilitate learning, LS teachers use the learners' mother tongue and English as a vehicle for learners to access scientific knowledge. This finding corresponds with that of Mokiwa and Msila (2013) and Kurwa's (2016) studies on the teaching of Physical Sciences, which reveal that understanding in science is achievable through other languages other than English and that the level of science learnt is dependant on the teachers' ability to bridge the gap between the medium of instruction and the learners home language.

It is visible from the excerpts that practical work in the form of demonstrations is used as an avenue for acquiring skills to observe, identify and list real objects/materials so that learners can gather evidence necessary to answer recall, identify and describe types of questions in the examination. In terms of Rogan's profile of implementation for practical work, these teachers and their schools are operating at level one. This means that the LS teachers' proficiency of bridging the gap between the language of instruction and the learners' home language becomes a control mechanism that determines the types of practical work done and the opportunities for learners to participate actively in the learning of science process skills as set out in the CAPS LS policy document.

School ethos and management

Through the questionnaire and interview, grade 10 LS teachers identified the culture of teaching and learning as an integral part of the school ethos and management. The influence that the school's culture of teaching and learning has during the implementation of practical work and the practical examinations is illuminated in the excerpts below:

> *With large classes it impossible to invigilate for any type of practs except demonstrations, I can't respond to student queries, see they are not copying, and ensure all the apparatus work, other teachers who assist with invigilation are not LS teachers they can't respond to learner queries, I have to make my own arrangements to get teachers to invigilation for the pract exams, the office don't see this as an official exam, they say make you[r] own arrangement, have it outside the exam period.* T9 (interview)

Similar responses were present in the questionnaire:

> *The learners take so long to come to class after break, they behave badly after break, you can't have tests after the break, many run away from school after break, so I'm always having to repeat lesson, learner don't do their work, the management look the other side [way] when learners are not in class, if you scold them they break the things in the class, to cope I do demonstrations only when possible otherwise I skip the practical's.* T23 (questionnaire response)

The culture of teaching and learning at these schools does not emphasise that learners need to report promptly for their lessons, adhere to the school code of conduct, complete their homework and that the existing resources are to be respected. If the management of a school does not instil discipline or the code of conduct amongst learners how does a solitary LS teacher propagate an appropriate culture of learning? The absence of a culture of learning raises several important questions. What kinds of practical work can be conducted when learners are perpetually late for classes? How does one manage to complete a lengthy LS curriculum with its stipulated practical work and practical examination as well as prepare learners for the examinations if one faces such time constraints? Furthermore, the lack of school management support for the logistical organisation of the practical examination is evident in the above excerpts. If the practical examinations are to be implemented effectively and not viewed as a "tick box activity" then LS teachers need "buy in" and support from their school management for the logistical organisation of the practical examination. Iileka (2017) in her study on effects of schools' leadership on the culture of learning and teaching noted that the school management is responsible for promoting a positive teaching and learning climate, limiting interruptions during instructional time and holding learners accountable for their performance. She also noted the relationship among the quality of school management, quality of teaching and learner performance.

As is evident from the excerpts above, the school management control over the teaching and learning climate (or a lack thereof) impacts the quality of teaching at these schools. In fact, it becomes a mechanism that controls the kind and form of teaching that occurs at school. The data shows that in the absence of a conducive teaching environment LS teachers resort to doing the bare minimum and use demonstration for practical work and the practical examination, which corresponds to level one on Rogan's profile of implementation for practical work. Practical activities are mainly teacher-centred and focus on the development of basic science process skills. In other words, learners are missing out on the opportunity to develop critical science process skills and teachers' teaching is restricted.

Teacher factors

The teacher factor that emerged from the data acquired was their confidence level to perform practical work. All the LS teachers in this study indicated that they needed help because they were uncertain, uneasy and overwhelmed by the new requirements in respect of practical work and the practical examination, as can be seen in the excerpts below:

> *I need help, I was not trained at college for practical work, and the CAPS training did not cover practical work, they only focus on theory, therefore I select the easiest practs and do them as demonstrations, in the pract exams I did demonstrations and learners completed the worksheet. I informed the subject advisor and asked for help, but not heard from him as yet.* T 9 (interview)

> *There are too many changes and demands made on us, I can't cope, I need training for practical work, I'm not confident handling apparatus, I feel unsure so I don't like to do practs – I rely on simple demonstrations, I attended the CAPS workshop, it was not about how we can be help[ed] to set practs and do practs – it was about the theory, this we know and can teach.* T25 (questionnaire response)

From the above excerpts it is apparent that during curriculum reform, teachers' individual histories and contextual backgrounds are ignored in the design of the training provided for curriculum implementation. The support offered to LS teachers for curriculum implementation does not focus on teachers' pedagogical needs regarding practical work. This particular find coincides with that of Singh-Pillay and Alant's (2015) study that highlights the disjuncture between the one size-fits-all, just in time training provided for curriculum implementation and the pedagogical support needed by teachers for curriculum implementation. Furthermore, the pedagogical uncertainty and lack of confidence that LS teachers encounter during the mandatory practical examination reform is elucidated. This uncertainty and lack of confidence restricts the kinds of practical work they engage in as well as the kinds of science process skills they develop in learners. The above finding corresponds with that of Kibirige and Tsamago's (2013) study that reported that teachers are not confident in teaching science using practical work due to the lack of appropriate training in practical work and that they resort to chalk-and-talk, lecturing and demonstrations when teaching sciences (Lubben *et al.,* 2010)

This means that teachers' lack of confidence in engaging in practical work becomes a benchmark for the kinds of practical work they engage their learners in during class and the practical examination. These teacher factors restrict teacher to operate at level one of Rogan's profile of implementation for practical work.

6. CONCLUSION

This study explored grade 10 LS teachers' views and experiences of the practical examinations. Rogan and Grayson's (2003) model for curriculum implementation was used to frame the study. All teachers in this study displayed negative views towards the mandatory practical examination based on their experiences of having implemented the mandatory practical examination. The findings of this study highlight the intrinsically intertwined relationship between the four constructs of the capacity to innovate (physical resources, learner factors, school ethos and management, and teacher factors) the kinds of practical work teachers engage in and their experiences of the practical examination. These factors collectively subvert the intended goals of the mandatory practical examination and restrict the practical work and the exams to demonstrations. More importantly the findings bring to the fore the dissonance between the intended CAPS LS policy document regarding types of practical work and the kinds of science process skills that ought to be developed in learners and the enacted CAPS LS policy document. Secondly, it highlighted the uncertainty and lack of confidence LS teachers encountered when they were expected to engage learners in different types of practical work and the practical examination as mandated by the CAPS LS policy document in the absence of professional development that meets teachers' pedagogical needs. Thirdly the contextual challenges LS teachers encounter in administering the practical examinations in the absence of support from the school management were also emphasised. Fourthly LS teachers' proficiency of bridging the gap between the language of instruction and the learners' home language becomes a control mechanism that determines the types of practical work done and the opportunities for learners to participate actively in the learning of science process skills as set out in the CAPS LS policy document was underlined.

These finding allude to the gaps in the curriculum delivery and what needs to be done in order to ensure that the ideals of the new curriculum are realised. Based on the aforementioned findings, the recommendation speaks to the need for adequate teacher professional development that suits the pedagogical needs of teachers, the need to capacitate school management teams about the requirements of the practical examination, the organisational logistics for the kind of practical examination envisaged in the CAPS LS policy and the dire need to ensure that resources are provided to meet the implementation needs. In addition, further research is needed into LS teachers' proficiency to bridge the gap between the language of instruction and learners' home language to facilitate learning of higher order skills.

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