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Exploring primary school teachers' use of formative assessment across fee and no-fee schools

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Background: Recent initiatives by the Department of Basic Education to support teachers to enhance their use of formative assessment are positive steps for improving teaching and learning. However, the nature and type of support required by teachers is unclear given the dearth of information on teachers' current pedagogical practices, and the extent to which formative assessment approaches are applied.

Aim: This article explores teachers' pedagogical practices in relation to five key formative assessment strategies: introduction of lesson objectives and assessment criteria, questioning and learner engagement, feedback practices and peer and self-assessment.

Setting: This study was conducted in two districts involving 96 foundation and intermediate phase teachers selected from 54 fee- and no-fee-paying schools.

Methods: Data were obtained using lesson observations and document review schedules. The analysis comprised descriptive and chi-square statistics.

Results: Some evidence of all the formative assessment strategies as well as the range of steps that characterised each strategy was observed in the pedagogical practices of teachers sampled for this study. However, only a minority of teachers were able to demonstrate effective use of any specific strategy. No significant differences were detected between teachers in fee-paying and no-fee-paying schools as well as between the foundation and intermediate phases.

Conclusion: Evidence of various aspects of the formative assessment approach in teachers' pedagogical practices provides a positive platform for enhancing their formative assessment knowledge and skills. The key challenge pertains to ensuring the effective implementation of the formative assessment approach to address the specific learning needs of all learners, in both fee and no-fee schools.

Keywords: assessment for learning; formative assessment; no-fee schools; fee-paying schools.

Introduction

The current initiative within the Department of Basic Education (DBE) for improving the assessment system within the country calls for the implementation of a National Integrated Assessment Framework comprising three complementary tiers: systemic evaluation, examinations and school-based assessment (DBE 2017; Chetty 2019; Mweli 2018). The introduction of this framework is intended to address several limitations that hinder the effective use of assessment data for improving learning and teaching within the General and Further Education and Training Band. These include the dominant role of examinations, the limited use of assessment for learning (AfL) approaches, the poor quality of school-based assessment and the lack of a reliable indicator of system performance. The renewed emphasis on improving the assessment system, in particular enhancing the implementation of AfL approaches, is a positive step that has the potential to significantly impact improvements in teaching and learning. Within the proposed framework, the notion of AfL advocated resonates with that called for by the Assessment Reform Group (ARG) in England. The ARG (2002) defines AfL as:

> [T]he process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there. (p. 2)

In this definition, AfL incorporates any assessment used to provide feedback to learners and/or to plan and modify lessons to address specific learning gaps identified. In practice, this approach manifests in two ways: (1) formative assessment and (2) formative use of summative assessment. This article focuses on the former that is the use of assessment evidence for improving teaching and learning during the lesson.

This renewed emphasis on AfL as a means for improving teachers' pedagogical practices is a welcome change in a system that has primarily focussed on examinations and tests at the expense of formative assessment that focuses on supporting improvements in teaching and learning (Chisholm & Wilderman 2013; Kanjee & Sayed 2013). To enhance the capacity of teachers to implement AfL approaches, the DBE proposes several professional development programmes delivered through different modalities involving assessment experts, subject advisors and school-based programmes linked to professional learning communities (Chetty 2019). Notwithstanding the complexities of effecting change within education systems (Sayed, Kanjee & Nkomo 2013) and formative assessment in particular (Andersson & Palm 2018; Pryor 2011), a key challenge in implementing effective capacity development programmes is the dearth of information on teachers' specific professional development needs. Limited information is available on the prevalence of formative assessment in teachers' pedagogical practices, and the extent to which these practices are used by teachers across schools in the different quintile categories. Thus, the nature and type of support required by teachers is unclear.

While several studies have been conducted in the post-apartheid schooling era on teachers' assessment, knowledge, understanding and practice (Kanjee 2009; Kanjee & Mthembu 2015; Kuze & Shumba 2011; Mkhwanaziet al. 2014; Nakabugo & Siebörger 2001; Pryor & Lubisi 2002; Van Laren & James 2008; Vandeyar & Killen 2007), all but one was based on small sample sizes (between 1 and 21 teachers). Moreover, only four focussed specifically on teachers' formative assessment practices. In addition, while some of these studies comprised samples from schools representing learners from diverse backgrounds, only two focussed on how issues of equity impacted teachers' assessment knowledge and practices, that is, one comparing urban and rural schools and the other comparing fee- and no-fee-paying schools. Given that the overwhelming majority of learners in South Africa attend no-fee schools, and the vast disparities in resources, facilities, teacher qualifications and socio-economic status of learners between these school types (Chutgar & Kanjee 2009; Frempong, Reddy & Kanjee 2011), interventions aimed at improving quality learning and teaching should also ensure that the learning needs of all learners, especially the poor and marginalised, are addressed.

Nakabugo and Siebörger (2001) investigated seven primary school teachers' application of formative assessment strategies (FAS) during their lessons. The authors recorded common patterns and frequency of teachers' observed assessment practices that were used in a formative manner. Their findings indicate that only a small component of some of the teachers' classroom practices could be considered as formative assessment, and that teachers were generally unaware that their practices incorporated aspects of this approach. The two strategies commonly applied were the use of open-ended questions to engage learners and providing oral feedback to support learners to address their errors.

Nakabugo and Siebörger (2001) concluded that the number of assessment strategies used by teachers in their study indicates that formative assessment comprised part of the classroom practices of some teachers, and called for additional research on the extent to which this was a common practice in South Africa. Kanjee and Mthembu (2015) explored 21 foundation phase teachers' understanding and use of formative and summative assessment in three schools across three quintile categories (Q2, Q3 and Q5). The authors found that most teachers only demonstrated partial understanding regarding the use of summative assessment to identify learning gaps, while no teacher demonstrated sufficient understanding to enable them to use formative assessment information effectively. With regard to their classroom practices, the authors reported that none of the three teachers observed engaged learners to understand the lesson objectives (LOs), while all three teachers only used traditional questioning approaches where responses were only sought from those learners who raised their hands. In addition, no evidence of descriptive written feedback was found in learners' books. Teachers' written feedback primarily comprised ticks, crosses and comments such 'good work', 'well done', 'work not done' or 'incomplete'.

In their study of seven grade 3 teachers, Mkhwanazi et al. (2014:471) also found that teachers were unable to use formative assessment approaches during their lessons. The authors reported that none of the teachers shared assessment criteria (AC) with learners, frequently asked only lower order questions and were unable to support learners to develop and practice self-assessment (SA) and peer assessment (PA) skills. The authors also found that the predominant form of written feedback was limited to ticks, marks and evaluative comments such as 'good' or 'well done'. Similarly, in their study involving five grade 9 technology teachers in one urban and four rural schools, Kuze and Shumba (2011:165) found that three teachers lacked the required knowledge to implement formative assessment during their lessons. The authors reported that while two other teachers implemented some aspects of the formative assessment approach, such as introducing the LOs and reminding learners of these objectives before assigning an activity they were not aware that they were using any specific formative assessment strategy. Highlighting their feedback practices, the authors reported that when teachers did provide feedback, this was often delayed, and learners tended to have forgotten the task being discussed. Kuze and Shumba (2011) ascribed teachers' poor knowledge and skills in formative assessment to the lack of capacity development and teachers' limited understanding of the policy requirements, noting that schools in the rural areas were severely disadvantaged.

To enhance teachers' assessment practices for addressing the learning needs of all learners in their classes, Pryor and Lubisi (2002) argue that within the current system dominated by examinations, teachers must possess both the knowledge and awareness to be able to reconceptualise the purposes and functions of assessment. Specifically, Pryor and Lubisi (2002) note that:

Unless teachers can reconceptualise educational assessment, in particular by acknowledging its formative functions, then far from being a means to emancipate teachers and learners from disadvantaged communities, it will only contribute to their continued distancing from the right to a good education. (p. 683)

Given the complexity of the teaching and learning process and the effective application of formative practices, Marshall and Drummond (2006) call for developing detailed descriptive accounts of teachers' observable classroom behaviours as a first step towards understanding teachers' classroom practices and the thinking that underpins such practices.

To obtain additional information on teachers' formative assessment practices in South African schools, as well as to contribute to current debates and to the limited literature on formative assessment within developing nations, this article reports on a study conducted to explore five main areas of teachers' classroom practice in relation to formative assessment: introduction of lesson objectives and assessment criteria, questioning and learner engagement, feedback practices and peer and self-assessment. This study comprised one project of a larger research programme implemented within the AfL Research Niche Area,[1] and addressed two questions: (1) To what extent do teachers' pedagogical practices incorporate FAS?, and (2) Are there any differences in these practices of teachers across no-fee- and fee-paying schools and between teachers in the foundation and intermediate phases? The next section presents the definition of formative assessment and the conceptual framework applied in the study. Next, the methodology is presented followed by the findings and discussion. The article concludes by highlighting the importance of the findings and implications for improving teachers' pedagogical practices.

Conceptual framework

The framework applied in the study was identified given its potential to address the twin challenges of quality and equity that impact the overwhelming majority of classrooms within the South African schooling sector (Frempong et al. 2011). Firstly, the framework postulates formative assessment as both a tool and a process to enhance pedagogical practices (Hay, Tinning & Engstrom 2015; Wiliam 2011a). Secondly, the effective use of formative assessment has the potential to create more opportunities that support all learners within the classroom, including those with diverse needs and experiences (Black & Wiliam 2009; Kalinec-Craig 2017; Pryor 2011). However, Pryor (2011:152) notes that this potential can only be realised when teachers understand and value the knowledge that learners bring into the classroom, and where their pedagogical practices are accomplished through activities conducted with learners as opposed to activities that are performed to learners.

[1].The Niche Area was established within the School of Education at the Tshwane University of Technology to undertake relevant research for addressing the key challenges of equity and quality within the education sector and to develop cost-effective models for scaling up programmes that positively impact on teachers' pedagogical practice and learners' learning.

Formative assessment and pedagogical practice

Effective pedagogy, according to Westbrook et al. (2013:18), refers to 'those teaching and learning activities which make some observable change in students, leading to greater engagement and understanding and/or a measurable impact on student learning'. Within the context of the classroom environment, teachers' pedagogical practices manifest in the complex sets of interactions that take place on a daily basis. These practices include how teachers introduce lessons, the questions teachers ask and the opportunities provided for learners to respond, the tasks and activities that teachers set and the support provided for learners to engage with these tasks and activities, the classroom climate that teachers seek to create, the types of learning that teachers seek to promote as well as the types of assessments applied and the manner in which teachers use assessment information for identifying and addressing the specific learning needs of their learners (Alexander 2008; Megahed et al. 2008; Schweisfurth 2011; Westbrook et al. 2013).

Hay et al. (2015) note that the relationship between assessment and pedagogy has been most overtly articulated through the AfL (or formative assessment) approach. The authors argue that the 'fundamental premise is that assessment provides teachers with information on the progress of their learners' learning so that appropriate adjustments in pedagogy and curriculum can be made to optimise future learning' (p. 8). Specifically, Hay et al. (2015) note that the use of formative assessment allows teachers to determine whether the intended outcomes they had planned to achieve have been realised, and whether to adjust their classroom practice to achieve the intended outcomes. For Hay et al. (2015), formative assessment thus:

[B]ecomes an important mechanism for promoting pedagogical work through the capacity it offers for establishing the degree of alignment between pedagogical intent and pedagogical consequences and the factors that may be contributing to any misalignments. (p. 8)

Formative assessment: Definition and strategies

In elaborating the importance of evidence that results in formative interaction, Black and Wiliam (2009) offer the following definition, which we applied in the study:

Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited. (p. 9)

To embed formative assessment into teachers' pedagogical practices, Wiliam and Thompson (2007) drew on Ramaprasad's (1983, cited in Wiliam 2011a) three key processes central in learning and teaching: (1) establishing where learners are in

their learning, (2) establishing where they are going and (3) establishing what should be performed to get them there. Taking into consideration the critical role of teachers, learners and peers as key agents in the classroom and the three processes central in learning and teaching, Wiliam and Thompson (2007) conceptualised formative assessment as comprising five key strategies:

> FAS1: Clarifying and sharing learning intentions and criteria for success.
>
> FAS2: Engineering effective classroom discussions and other learning tasks that elicit evidence of learning.
>
> FAS3: Providing feedback that moves learners forward.
>
> FAS4: Activating learners as instructional resources for one another.
>
> FAS5: Activating learners as the owners of their own learning.

Table 1 shows how the five key FAS, three processes and key agents in the classroom can be linked to provide an integrated framework for formative assessment practice. In their study on characteristics of formative assessment practice, Andersson and Palm (2017:106) noted that this framework is based on the 'big idea' of using evidence of learners' learning to adjust instruction to better meet the needs of learners. Moreover, within the context of the classroom, the authors advocate its application as a 'whole classroom practice' rather than as discrete and independent strategies and techniques that teachers apply. Similarly, Black and Wiliam (2009) argue that while teachers may apply specific strategies at particular points in time during lessons, none of these occurs in isolation.

Formative assessment strategy 1: Clarifying and sharing learning intentions and criteria for success

Learning intentions (LIs) provide learners with information on what they need to learn in the lesson, while success criteria (SC) indicate what evidence is expected from learners to demonstrate that they have attained the LIs. For this strategy to be successfully implemented, Wiliam (2011b) and Clarke (2008) list a number of pedagogical practices that teachers must implement during their lessons. A critical first step is to ensure that the LIs and SC are made explicit to all learners. In this regard, teachers must clearly communicate to all learners what they will be learning while also ensuring that the activities used during the lesson are not conflated with the LIs. For example, in a lesson about colours where a teacher uses a colourful butterfly to demonstrate different colours, learners can easily perceive the lesson to be about butterflies. Similarly, learners need to be clear on what counts as success and thus the evidence they need to produce

to demonstrate this. For example, 'I can point to the different colours' or 'I can name the colours in the picture'.

Other practical steps recommended include using learner friendly language to introduce the LIs and SC, ensuring that the SC are linked to the LIs, providing all learners with an opportunity to understand the LIs and SC, ensuring that the LIs and SC are visible to all learners throughout the duration of the lesson, regularly referring to the LIs and SC during the lesson to remind learners of what they are learning and the evidence they need to produce that counts as success, and using the LIs and SC at the end of the lesson to review progress made during the lesson.

Formative assessment strategy 2: Engineering-effective classroom discussions and activities to elicit evidence of learning

This strategy relates to teachers' use of appropriate techniques, activities and questions to encourage all learners to participate in classroom activities as they obtain evidence of learning. To enhance the quality and relevance of the questions asked by teachers, Wiliam (2011b) and Clarke (2008) note that teachers must carefully plan for any questions they intend to ask before the lesson and should list these in their lesson plans; ensure that the questions are linked to the LIs and SC; use a range of different questions' that include higher order thinking questions as well; and involve learners in the process of developing questions.

Formative assessment strategy 3: Providing feedback that moves learners forward

The primary purpose of providing feedback is to reduce the gap between the learners' current level of understanding and/or performance and the learning goal to be attained (Hattie & Timperley 2007). Black and Wiliam (1998) note that for teacher feedback practices to be effective, these must allow the learner to focus on what to do next rather than focusing on how well or how badly he or she has performed. McCallum, Hargreaves and Gipps (2000) note that while the form of teacher feedback can be verbal, non-verbal, written or a combination of these, the content of the feedback could either be evaluative or descriptive. Evaluative feedback refers to teacher judgements about the performance of learners which are either positive or negative, and usually takes the form of grades, and short, non-specific comments, often praise or censure. Descriptive feedback provides learners with appropriate details on what to do next, and can also support learners to take responsibility of their own learning.

TABLE 1: Formative assessment strategies, key processes and key agents in the classroom.

Agent	Where the learner is going?	Where the learner is right now?	How to get there?
Teacher	FAS1: Clarifying and sharing learning intentions and criteria for success	FAS2: Engineering-effective classroom discussions and tasks that elicit evidence of learning	FAS3: Providing feedback that moves learners forward
Peer	FAS1: Understanding and sharing learning intentions and criteria for success	FAS4: Activating learners as instructional resources for one another	FAS4: Activating learners as instructional resources for one another
Learner	FAS1: Understanding learning intentions and criteria for success	FAS5: Activating learners as the owners of their own learning	FAS5: Activating learners as the owners of their own learning

Source: Wiliam, D. & Thompson, M., 2007, 'Integrating assessment with instruction: What will it take to make it work?', in C.A. Dwyer (ed.), *The future of assessment: Shaping teaching and learning*, pp. 53–82, Erlbaum Associates, Mahwah, NJ.

FAS, formative assessment strategy.

Formative assessment strategy 4: Activating learners as learning resources for each other (peer assessment)

This strategy is evident when learners are provided with opportunities to work collaboratively and to review each other's work so as to provide feedback that is aligned to the SC. Wiliam (2011b) notes that peer assessment (PA) can only be successfully applied if teachers create opportunities during lessons and develop the necessary skills in their learners. This implies that learners must be taught how to use the LIs and SC to review the work of their peers, how to identify positive aspects of the work being reviewed and how to provide constructive critique and feedback that their fellow learners can use to improve their own learning.

Formative assessment strategy 5: Activating learners as owners of their own learning or self-assessment

Self-assessment (SA) is defined as a process during which learners reflect on and evaluate the quality of their work based on the stated SC to identify strengths and weaknesses that need to be addressed (Andrade & Du 2007:160). Absolum (2010) argues that it is through SA that learners may begin to accept responsibility for progress towards their own learning goals and outcomes, and notes that teachers must provide opportunities for learners to take greater ownership of the learning process. Similar to the use of PA, Wiliam (2011b) notes that for SA to be effective, the teacher should support learners to develop their knowledge and skills to effectively apply the SC, and to plan for the next steps in improving their own learning.

Methodology and design

This section provides an overview of the sample from which the data were obtained, the instruments used, the analytical framework applied and the analysis conducted. In keeping with the ethics agreements, no information pertaining to the names of schools, teachers, learners nor the participating districts and provinces is provided.

Sample

Data presented and discussed in this article were obtained from a sample of 96 teachers from 54 primary schools. No-fee-paying schools comprised 59% and fee-paying schools 41% of the sample, while 61% of teachers were from no-fee schools and 39% were from fee-paying schools. In addition, 29% of teachers taught in the foundation phase and 71% in the Intermediate Phase. All but one of the observations were conducted during mathematics lessons, with data for the one language lesson excluded from the analysis. In the foundation phase, 41% of the lessons were presented in Setswana, 22% in English and Sepedi, respectively, and 7.5% in Afrikaans and isiZulu. In the intermediate phase, 98% of lessons were in English and 2% in Afrikaans.

Instruments

Data were collected using an observation and a learner workbook review schedule. The observation schedule was based on the five key strategies proposed by Wiliam and Thompson (2007) and used to record teachers' assessment practices observed during the lessons. Given that none of the teachers had been exposed to the formative assessment strategies, the schedule was adapted to account for current policy terminology or concepts familiar to teachers. For example, LOs and AC were used instead of LIs and SC.

The observation schedule was used to record instances and patterns of teachers' formative assessment practices observed during the lesson. Section 1 sought information on whether and how teachers introduced the LOs and AC. Section 2 section focussed on how teachers engaged learners during the lesson, and sought information on the nature, type and manner in which questions were asked, whether learners were reminded of the LOs and AC, how verbal feedback was provided, whether and how PA and SA were implemented during the lesson and how teachers concluded their lessons, that is, whether they referred to the LOs and AC. The learner workbook review schedule was used to record teachers' written feedback practices as observed in the two learner workbooks.

Data collection

Data for the study were collected by members of the project team, final year education students who had been exposed to the theory and practice of formative assessment from their second year onwards, as well as retired teachers who underwent an intensive week-long professional development programme. During the observations, observers were required to indicate whether any instances of teachers' practices as listed in the schedule were 'seen' or 'not seen'. For the teacher questioning, however, a three-point scale was used: 'Not seen', 'Sometimes' and 'Often'. The focus was thus on the observed formative assessment practices applied.

Evidence of teachers' written feedback was obtained from a review of two learner workbooks randomly selected from two batches identified by the teacher: one comprising books of five high and the other five low-performing learners. All observed comments from the beginning of the third term were transcribed verbatim onto the observation schedule, for example, 'good', 'well done' and 'incomplete', while observers also indicated the existence of ticks, crosses, stickers, stamps or numerical marks. Cases where the selected books were not marked were also recorded.

Data coding

Additional coding was required to classify teachers' written feedback. The analytical framework (Table 2) comprised the following categories: (1) content of feedback – evaluative, descriptive or procedural; (2) focus of the feedback – learner, task or unknown; (3) type of feedback – positive, negative or neutral; and (4) format of the feedback – symbols (i.e. $\times$, ✓,?,!)

TABLE 2: Typology applied for analysing teachers' written feedback.

Content of feedback	Focus of feedback	Nature of feedback	Format of feedback
Evaluative	Learner	Positive	Symbols
Descriptive	Task	Negative	Written text
Procedural	Cannot classify	Neutral	Cannot classify
-	-	Cannot classify	-

or written text (Kanjee 2018). Two experienced researchers independently coded each recorded comment, using the framework presented in Table 2. For example, the following comments were recorded for learner X in teacher Y's class: 'Good'; 'Incomplete work?'; 'lots of ticks and crosses'. The first comment 'Good' was coded as follows: Content – 'Evaluative', Focus – 'Task', Nature – 'Positive' and Format – 'Text'. Similarly, the second comment 'Incomplete work?' was coded as follows: Content – 'Procedural', Focus – 'Task', Nature – 'Neutral' and Format – 'Text', while the information '*lots of ticks and crosses*' was coded as Content – 'Evaluative', Focus – 'Task', Nature – 'Cannot classify' and Format – 'Symbol'. In addition, 'No comments' refers to books that only contained signatures (or sometimes a 'seen' stamp) but no other forms of feedback, while 'Not marked' refers to books without any feedback and signatures. A third researcher then reviewed the codes. Codes that did not correspond were revised through a process of mediation and consensus with the two researchers who compiled the original codes.

Analysis

The analysis was conducted using the Statistical Package for Social Sciences and comprised descriptive statistics and chi-square analysis. Recorded instances and patterns of teachers' formative assessment practices were disaggregated by foundation phase (Grades 1–3) and intermediate phase (Grades 4–6) as well as by the fee-paying status of schools and presented as tables or graphs. Chi-square analysis was conducted to determine differences in response patterns between teachers in no-fee- and fee-paying schools as well as those teaching in the foundation and intermediate phases.

Ethical consideration

Approval to conduct the study was obtained from the Faculty Committee for Research Ethics – Humanities, Tshwane University of Technology (reference no. FCRE/EDU/STF/ 2015/01).

Results

It is important to clarify that these findings are not intended to expose teachers' classroom practices. The primary intention was to identify specific needs and gaps regarding teachers' formative assessment practices for use in developing relevant interventions to address these needs. Thus, the focus was on developing detailed descriptive accounts regarding the prevalence and common patterns of teachers' observable pedagogical practices (Marshall & Drummond 2006) that could be considered meeting the requirements specified in the strategies outlined by Wiliam and Thompson (2007).

# Evidence of teachers' use of formative assessment

This section presents findings pertaining to the first research question, that is, the extent to which teachers' current pedagogical practices embed the formative assessment approach as outlined by Wiliam and Thompson (2007).

Use of the lesson objectives and assessment criteria

The effective application of any formative assessment strategy requires teachers to apply several key pedagogical steps that should be integrated into their classroom practices (Clarke 2008; William 2011b). It is acknowledged that, in practice, these pedagogical steps are implemented in complex interactive learning and teaching activities and cannot be applied as unidimensional activities presented in fixed sequences. However, for the purpose of this article, a more nuanced understanding was required to clearly determine the prevalence and common patterns of any formative assessment strategies that were incorporated into teachers' repertoire of classroom practices (Wiliam & Thompson 2007). Thus, for FAS1, the analysis was disaggregated by (1) the teachers' introduction of the LOs and AC at the beginning of the lesson and (2) the teachers' use of the LOs and AC during the lesson.

Figure 1 lists the prevalence of specific pedagogical steps observed during teachers' introduction of the LOs and AC, and indicates that teachers in the study applied a range of pedagogical steps associated with FAS1. While all teachers introduced the LOs verbally, just under half (49%) also presented these visually, that is, written on the board, chart or handout. Forty-four per cent of the teachers also ensured that the LOs were visible to all learners in the class, while only 50% took the time to explain the LOs. However, substantially fewer teachers introduced the AC (33%), all of whom presented these verbally. In addition, only 27% presented the AC visually and ensured that the AC were visible to all learners, while 22% were observed explaining the AC. Visibility of the LOs and AC would ensure that both the teacher and learners could refer to this information for the duration of the lesson, while visibility with a comprehensive explanation would ensure that learners have a better understanding of the lesson. In practice, this could take the form of writing the LOs and AC on the board or posting charts or distributed them as handouts.

When using the LO and AC during the lesson, some teachers also applied the full range of pedagogical steps associated with FAS1. As noted in Figure 2, approximately 52% and 33% of the teachers, respectively, were observed using the LOs and AC during the lesson. However, only 44% and 25%, respectively, ensured that the LOs and AC were accessible to all learners throughout the lesson (i.e. by keeping the LOs or AC on the board or handouts given to learners). Similarly, 24% and 5% of teachers, respectively, reminded learners of the LOs and AC during the lesson, while 38% checked whether the LOs, and 21% whether the AC, were attained at the end of
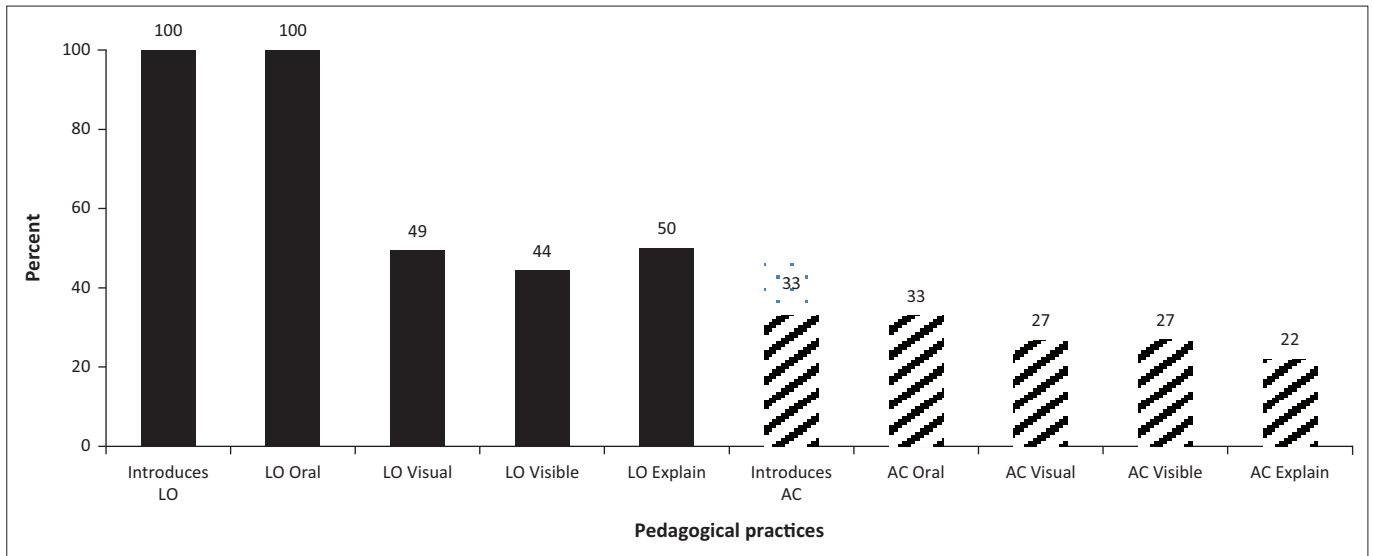
LO, lesson objective; AC, assessment criteria.

FIGURE 1: Pedagogical practices applied when introducing the lesson objectives and assessment criteria.
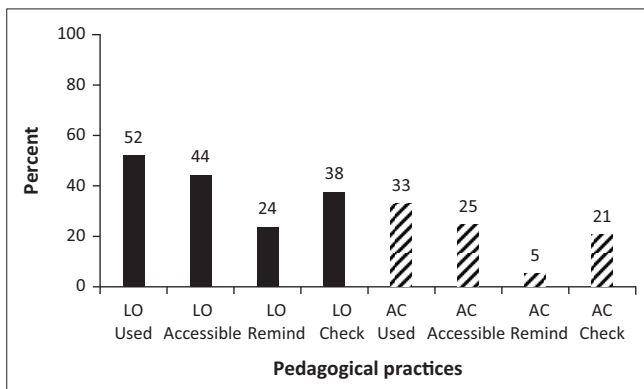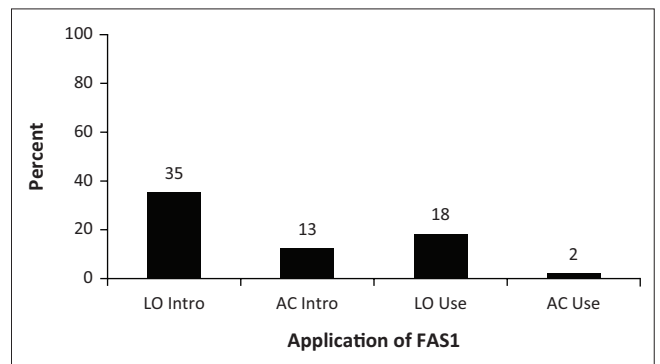

LO, lesson objective; AC, assessment criteria.

FIGURE 2: Pedagogical practices applied when using lesson objective and assessment criteria during lessons.

FAS, formative assessment strategies; LO, lesson objective; AC, assessment criteria.

FIGURE 3: Percentage of teachers who met all the key criteria in the application of formative assessment strategy 1.

the lesson. Having the LOs and AC visible throughout the lesson provides a visual stimulus for the learner, more so when the teacher periodically refers to them during the lesson. This approach helps to reinforce the theme of the lesson (LOs) and how both the teacher and learner will know whether the concepts of the lesson have been attained (AC).

Additional analysis was also conducted to determine the percentage of teachers who applied all the pedagogical steps required to effectively introduce and use the LOs and AC. As noted in Figure 3, a small percentage of teachers met this criterion regarding the LO (35%) and AC (13%). This finding indicates that the majority of teachers introduced the LOs (65%) and AC (87%) in a manner that provided learners with limited opportunities to understand what they were going to learn and what evidence they were required to demonstrate if they had attained the LOs. Similarly, only 18% and 2% of teachers, respectively, applied the LOs and AC to ensure that learners were focussed on the LOs and AC during the lesson (i.e. LOs and AC visible throughout the lesson and

learners were reminded about LOs and AC) and also checked if the Los or AC were attained at the end of the lesson. The reasons for the substantial differences between teachers' use of the LOs and AC in this aspect were not explored in this study and present an area of research for a follow-up study.

Managing-effective classroom discussions and activities

FAS2 highlights two important aspects of the formative assessment approach. Firstly, obtaining evidence of learning requires teachers to ask relevant questions to which responses provide some evidence of such learning. Secondly, teachers need to use questioning to effectively engage all learners during the lesson. Figure 4 indicates that the dominant form of engagement with learners was based on teacher-initiated questions that were directed to the whole class. Learners reacted by raising their hands, usually a small minority and often the same group of learners, and teachers primarily requested responses from those who raised their hands. In 78% of the lessons observed, teachers often or

sometimes linked their questions to the LOs and/or AC. Teacher questions were often or sometimes directed to the whole class in 92% of the lessons observed, while learners often or sometimes raised their hands in 91% of the lessons. In 80% of the lessons teachers often or sometimes only selected from those who had their hands up to provide responses, while in 62% of the lessons, teachers often or sometimes involved more than one learner when obtaining responses. In addition, teachers often or sometimes provided learners with some time to think before responding to a question in 82% of the lessons observed.
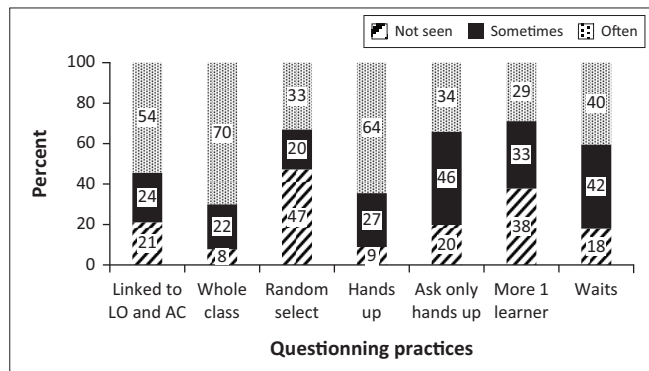
Teachers' oral and written feedback practices

Given that information on teachers' oral feedback practices was confined to the specific context when teachers assigned tasks to learners during the lesson, it is acknowledged that some teachers may not have planned for such activities for the lessons observed. In this study, six teachers did not assign any work to their learners, and thus, the findings are based on the observation of 90 teachers. Of these, 80% were observed walking around the classroom and 'checking' on learners as they completed the assigned task (Figure 5). However, only 66% provided some form of oral feedback. The primary focus of the feedback was correcting learners' work or addressing learners' questions regarding the assigned task. It was not

possible to obtain additional information on the relevance of the feedback to the learners' written work, or on the effect of the feedback on learners' responses as the nature and purpose of the feedback could not be recorded.

The analysis regarding teachers' written feedback was also disaggregated by high-performing learners (HPLs) and LPLs. As noted in Figure 6, 9% of the sample of HPLs' books and 12% of the sample of LPLs' books were neither marked, nor contained any written feedback. The content of the feedback provided (Figure 6a) was predominantly evaluative and procedural. Substantially higher percentages of procedural feedback (42% vs. 15%) were found in books of LPLs, while substantially higher percentages of evaluative feedback (72% vs. 38%) were found in books of HPLs. More concerning, however, was the fact that only 4% of HPLs' books and 8% of LPLs' books contained any descriptive feedback. Written text (Figure 6b) comprised the predominant format of feedback provided to LPLs (54% vs. 34% for symbols), while the similar amount of text (44%) and symbols (47%) was observed for HPLs.

With regard to the type of feedback provided (Figure 7a), positive feedback was found in 31% of HPLs' books compared to 11% for LPLs, while 14% were negative for HPLs compared to 37% for LPLs. However, approximately a third of the

LO, lesson objective; AC, assessment criteria.

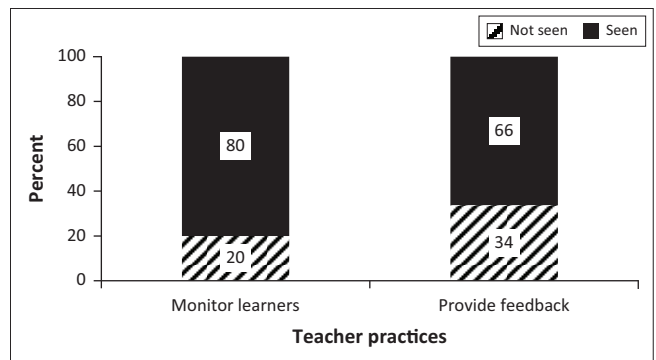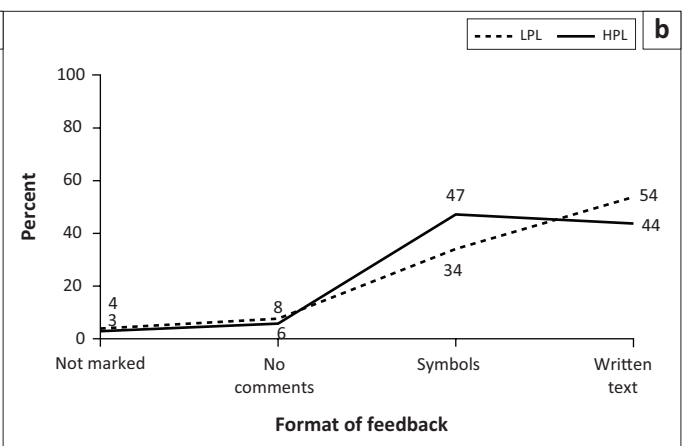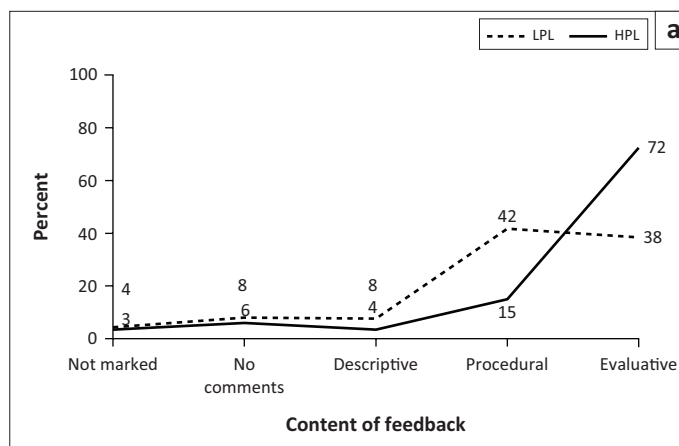**FIGURE 4:** Teachers' questioning practices observed during lessons.
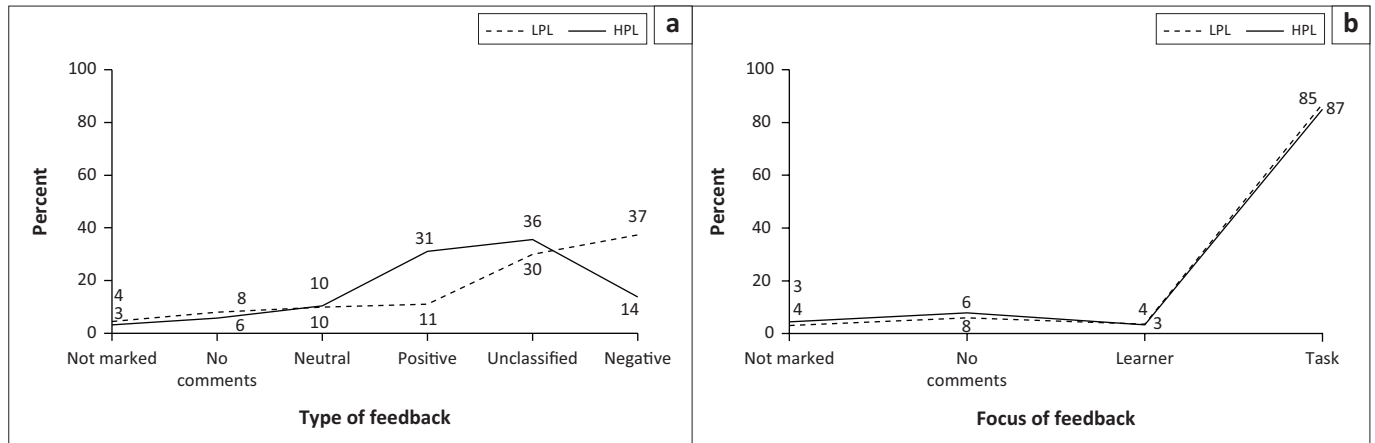
FIGURE 5: Teachers' oral feedback practices.

LPL, low-performing learner; HPL, high-performing learner.

FIGURE 6: (a) Content of feedback for low- and high-performing learners; (b) Format of feedback for low- and high-performing learners.

LPL, low-performing learner; HPL, high-performing learner.

FIGURE 7: (a) Type of feedback for low- and high-performing learners; (b) Focus of feedback for low- and high-performing learners.

comments could not be classified, given that no information was recorded regarding the content on which the feedback was provided. In terms of the feedback focus (Figure 7b), no differences were noted between HPLs and LPLs with the overwhelming majority of feedback, 87% and 85%, respectively, focussed on the task.

Peer assessment and self-assessment

The analysis regarding teachers' use of PA and SA took into account the reality that teachers determined if and when these strategies should be used, and that it was highly unlikely that teachers would use both practices during a single lesson. Across all observations, 23% (i.e. 22 teachers) used PA and 40% (38) used SA, while 37% (36) used neither strategy. Within this context, the results do provide some indication of teachers' proficiency in applying these strategies. Of the 22 teachers who used PA, 47% applied all four required pedagogical steps and can thus be considered as having effectively applied FAS4. Additional analysis (Figure 8) revealed that 73% of teachers reminded their learners how to undertake PA, 58% listed the AC for learners and 77% monitored learners, while 44% provided feedback to learners. Similarly, of the 38 teachers who used SA, only 27% can be considered as having effectively applied all four criteria required for FAS5. Sixty-three per cent of teachers also reminded their learners about the process, 39% listed the AC for learners and 54% monitored learners, while 33% provided feedback to learners when they were busy applying this strategy. The reasons for teachers' use of PA and SA and the effectiveness with which these strategies were applied could not be ascertained in this study. Determining these reasons provides an area of investigation for similar studies in the future.

Similarities in teachers' formative practices

This section addresses the second research question, that is, are there any differences in teachers' formative assessment practices across no-fee- and fee-paying schools and between teachers in the foundation and intermediate phases?
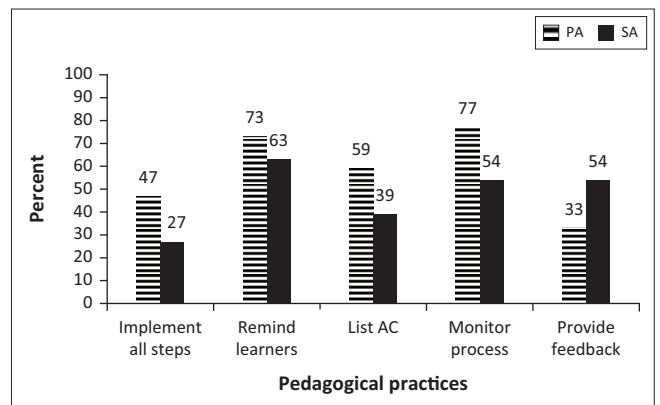
AC, assessment criteria; SA, self-assessment; PA, peer assessment.

FIGURE 8: Teachers' use of peer ($n = 22$) and self-assessment ($n = 38$) during lessons.

Given space limitations, the results of the comparisons of teachers' specific pedagogical practices, as presented in Figures 1–8, are summarised in Appendix 1 (Figure 1A-1). The findings indicate no significant differences between fee- and no-fee-paying schools and teachers in the foundation phase (FP) and intermediate phase (IP) regarding the prevalence of all but one of the formative assessment strategies. For FAS2, significantly higher percentages of teachers in no-fee schools were observed linking the LOs and AC to the questions and randomly selecting learners. However, the specific reasons for this were not immediately apparent and would require further investigation.

Discussion

The findings indicate that all the formative assessment strategies outlined by Wiliam and Thompson (2007) as well as the range of pedagogical steps that characterise each strategy were observed in the practices of some of the teachers sampled for this study. However, only a minority of teachers were able to demonstrate effective use of any specific strategy, that is, these teachers were able to apply all the required pedagogical steps specified in the conceptual framework. These findings corroborate earlier findings reported by Kuze

and Shumba (2007) and Nakabugo and Siebörger (2001). These authors also reported that teachers in their study were unaware of their use of formative assessment. In this study, teachers' unawareness is indicative by their practice of formative assessment as discrete and independent techniques isolated from any specific formative assessment strategy and/or the overall formative assessment approach (Wiliam & Thompson 2007). Comparisons of pedagogical practices that could be categorised as formative assessment reveal no differences between teachers in fee- and no-fee-paying schools as well as between teachers in the foundation and intermediate phases.

Given the large disparities in levels of qualification and resources, it had been expected that teachers from the fee-paying schools would demonstrate higher levels of understanding and knowledge. Upon reflection, this finding is not surprising given the limited focus of teacher training programmes on assessment in general and formative assessment in particular (Imenda et al. 2016), as well as the limited focus of in-service professional development programmes on assessment over the last two decades (Kanjee & Sayed 2013). The 'equally low' levels of formative assessment practices demonstrated by teachers across the quintile categories raise further questions, and point to the need for additional research, on how the specific learning needs of both HPLs and LPLs are addressed in better resourced and generally higher performing schools compared to poorly resourced and generally lower performing schools.

Notwithstanding the wide range of formative assessment practices observed, a relatively small percentage of teachers were able to effectively introduce the LOs and AC. Within this context, this implies that in the majority of lessons presented, learners were unaware of what they were going to learn, or what evidence they were required to demonstrate that they had understood those concepts that needed to be learnt (Crichton & McDaid 2016; Wiliam 2011b). Teachers' limited use of the LO and AC raises further questions as to how they maintained the attention of learners on the core concepts to be learnt during the lesson, or how they determined whether learners understood the concepts that had to be learnt. More concerning is that learners themselves had limited opportunities to ascertain for themselves whether they had grasped the concepts they needed to learn during the lesson. However, evidence regarding the range of different pedagogical practices applied in the introduction and use of the LO, and to a lesser extent, in the introduction and use of the AC, provides a positive starting point for further enhancing teachers' effective application of FAS1.

With regard to questioning and learner engagement, the majority of teachers' practices were still embedded in the traditional model wherein teacher-initiated questions were directed to the whole class, a minority of learners reacting by raising their hands, and teachers mainly obtaining responses from those who had raised their hands. Within this form of interaction, large numbers of learners are excluded from any active engagement during the lesson, while teachers are also deprived of additional evidence for use in enhancing their teaching. In practice, this group of learners usually comprised those who did not know the answer, did not understand the question or did not want to respond. Leahy et al. (2005) note that this traditional model of questioning allows learners to disengage from the classroom by keeping their hands down. To enhance learner engagement during lessons, these authors propose the use of a 'no-hands-up, except-to-ask-a-question' approach, where the teacher uses specific techniques to randomly call on learners to respond.

The high prevalence of questions linked to the LOs is indicative of teachers' intention to ensure that learners remained focussed on the concepts that they needed to learn. Deviation from this approach has the potential to hamper learning by shifting emphasis to irrelevant matters or by creating confusion. Moreover, allowing for 'think-time' provided opportunities for learners to reflect on the question and take time to frame their responses. These two aspects were positive findings that pointed to teachers' emphasis on enhancing effective engagement with learners. In their review of teachers' formative assessment practices, Egan, Cobb and Anastasia (2009) found that the use of think time and wait time not only encouraged respect among learners but also allowed teachers to transition to a role of sharing responsibility for learning with the learner. The authors noted that students were aware that they were not allowed to shout out responses, that their peers should be allowed time to reflect on their response and that all students in the class should serve as resources to each other and thus each student also used this time to think about their own response.

The most concerning finding emanating from this study pertains to the extremely low prevalence of descriptive feedback (i.e. FAS3). The predominance of evaluative and procedural feedback coupled with the limited descriptive feedback found for both HPLs and LPLs is indicative of the poor support provided to address specific learning gaps of learners. In practice, this implies that most of the written feedback that teachers provided served little purpose for enhancing learning or for supporting learners to take responsibility of their own learning. For Earl (2013), evaluative feedback provides limited information on how to address specific learning gaps, while descriptive feedback provides learners with appropriate details on what to do next, and can also support learners to take responsibility of their own learning.

Moreover, the substantial differences between HPLs and LPLs revealed a disturbing trend, wherein LPLs were provided with more procedural and negative comments and fewer positive comments compared to higher performing learners. Earl (2013:99) noted that this type of feedback affects learners' sense of themselves and offers very little direction for improving their learning. More alarming is Rubie-Davies's (2014) assertion that this type of feedback is generally provided by teachers that have low expectations of

their learners. However, it is reassuring that the overwhelming majority of the feedback was focussed on the task as opposed to the learner. Hattie and Timperley (2007:86) noted that the impact of feedback on learning is low when it focuses primarily on praise, rewards or punishment directed at the learner as it contains high threats to the learner's self-esteem and too often deflects from attention to the task.

While substantially more teachers used SA during the lessons observed, more teachers effectively applied all the pedagogical steps required for the effective use of PA. Substantially higher percentages of teachers were observed engaging learners during PA activities by reminding learners about the process, reviewing the AC, monitoring their engagement and providing feedback. The added benefits of PA are that the learners may be more receptive to feedback from their peers than their teachers because it is perceived to be less threatening. However, research also indicates that SA helps the learner to self-regulate and develop their metacognitive skills (Keeley & Tobey 2011). The findings also revealed that the overwhelming majority of teachers who used PA and SA in their lessons were able to effectively employ several key pedagogical steps related to each strategy.

It is important to account for the context within which both PA and SA activities were implemented. In the majority of lessons observed, these strategies were underpinned by traditional pedagogical practices that potentially limit their impact on learning. Typically, PA and SA were undertaken during the lesson after: (1) activities were assigned, usually after the lesson introductions and the 'teaching' were completed; (2) learners were provided with opportunities to complete these activities, often working on their own; (3) some teachers engaged learners on the work they had completed, using traditional question and answer approaches; (4) teachers provided learners with the correct responses. In most cases, these were written on the board while several teachers provided these in the form of worksheets, (5) teachers then reviewed the correct responses, often using traditional question and answer approaches directed at the whole class; and (6) learners were then allowed to complete the PA or SA activity. In several cases, teachers were observed 'marking' learners' work during the process, which, in practice, translated to assigning signatures and dates to indicate that the work has been checked. Within these traditional applications that foreground the letter rather than the spirit, it is doubtful whether intended benefits of PA and SA can accrue to learners.

Conclusion

The provision of relevant professional development programmes for enhancing teachers' effective use of formative assessment (Chetty 2019; Mweli 2018) is an important requirement for supporting teachers to implement pedagogical practices that address the learning needs of all learners. This is especially relevant given the limited success of various intervention programmes over the past two decades in addressing policy stipulations regarding teachers'

knowledge, understanding and skills in using formative assessment to improve learning and teaching. These challenges, however, have to be understood within the context of several factors that impact how teachers understand and integrate formative assessment in their pedagogical practices. A key factor pertains to the complexity of implementing formative assessment approaches that go beyond the instrumental use of strategies to embody both the letter and spirit of the approach (Marshall & Drummel 2006). Pryor (2011) argues that this is extremely difficult to attain in practice given the complex nuanced processes that define formative assessment strategies, and that teachers have to first acquire and then effectively integrate into their pedagogical practices that also have to be adapted to specific learning and teaching contexts.

Kanjee and Sayed (2013) noted several additional factors hindering South African teachers' effective use of formative assessment: the effect of accountability systems that focus on examinations and summative assessment, teachers' limited knowledge, understanding and skills in the effective use of assessment and the limited support provided and capacity development opportunities available to teachers. The key challenge pertains to the implementation of professional development programmes that address specific assessment needs of teachers and that can be scaled up based on cost-effective models. However, additional information is required on teachers' beliefs and understanding of assessment, and the key decision-making processes applied in deciding when and how assessment should be used and integrated into their pedagogical practices to address the specific learning needs of all learners. This area forms the basis for further research.

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Disclaimer

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Appendix 1

Pedagogical practices	School status		Phase	
	No fee	Fee	FP	IP
FAS1				
LO Intro	No diff		No diff	
AC Intro	No diff		No diff	
LO use	No diff		No diff	
AC use	No diff		No diff	
FAS2				
Linked to LO and AC	Higher for No fee**		No diff	
Random select	Higher for No fee**		No diff	
Learner hands up	No diff		No diff	
Ask only hands up	No diff		No diff	
Learner hands up	No diff		No diff	
More 1 learner	No diff		No diff	
Ask whole class	No diff		No diff	
Wait time	No diff		No diff	
FAS3 – oral feedback				
Monitor learner	No diff		No diff	
Provide feedback	No diff		No diff	
FAS3 – written feedback				
Not marked	No diff		No diff	
No comments	No diff		No diff	
Content –descriptive	No diff		No diff	
Content – evaluative	No diff		No diff	
Content – procedural	No diff		No diff	
Format – written text	No diff		No diff	
Format – symbols	No diff		No diff	
Type – negative	No diff		No diff	
Type – positive	No diff		No diff	
Type – neutral	No diff		No diff	
Type – unclassified	No diff		No diff	
Focus – task	No diff		No diff	
Focus – learner	No diff		No diff	
Peer assessment				
Reminds learners	No diff		No diff	
List AC	No diff		No diff	
Check process	No diff		No diff	
Provide feedback	No diff		No diff	
Self-assessment				
Reminds learners	No diff		No diff	
List AC	No diff		No diff	
Check process	No diff		No diff	
Provide feedback	No diff		No diff	

FP, foundation phase; IP, intermediate phase; diff, difference; FAS, formative assessment strategies; LO, lesson objective; AC, assessment criteria.

**, statistically significant at the 0,01 level.

FIGURE 1-A1: Results of chi-square analysis comparing fee versus no-fee and foundation phase versus intermediate phase.