

Tinder or flint: igniting grade 2 teachers' understanding of learning, teaching and assessment

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Abstract

This article reports on a study conducted to determine Grade 2 teachers' knowledge and understanding of learning, teaching and assessment for use in the planning and implementation of a large-scale professional development programme on Assessment for Learning. A baseline survey was used to collect data from teachers in 86 schools, randomly selected across fee paying and no-fee schools in two Gauteng districts. Teacher responses across both school types indicate a predominant emphasis on teacher-centred approaches, despite acknowledging the importance of effective learner engagement in their lessons. An overwhelming majority displayed limited knowledge of formative assessment, often conflating formative with formal assessment. More concerning however, was the absence of a deeper understanding regarding the use of assessment for enhancing learner participation and for identifying specific learning needs of learners. The implications of these findings for supporting teachers to develop and implement formative assessment approaches are explored further. The paper concludes by noting areas for further research to determine whether professional development programmes, implemented within the context of learning and teaching in South African schools, can succeed in enhancing teachers' knowledge and skills for the effective use of formative assessment approaches to improve learning for all.

Introduction

Assessment is one of the core responsibilities of any teacher, and a critical requirement for ensuring enhanced learning and teaching in the classroom. According to the revised policy on the Minimum Requirements for Teacher Education Qualifications (MRTEQ) (Department of Higher Education and Training, 2015), all newly qualified teachers should (amongst other competences):

- . . . know who their learners are and how they learn;
- understand their individual needs and tailor their teaching accordingly;
- be able to assess learners in reliable and varied ways, as well as being able to use the results of assessment to improve teaching and learning;
- be able to reflect critically on their own practice, in theoretically informed ways and in conjunction with their professional community of colleagues in order to constantly improve and adapt to evolving circumstances.

The competences imply that teachers' assessment practices will be based on their knowledge of learning theories, their interpretations of assessment results, their ability to reflect on the results and their own teaching with the aim of improving their teaching and learning practices. Furthermore, the National Protocol for Assessment Grades R–12 (Department of Basic Education (DBE), 2012, p.34) defines assessment as “a process of collecting, analysing and interpreting information to assist teachers, parents and other stakeholders in making decisions about the progress of learners”. The purpose of classroom assessment (both formal and informal) is to obtain ample evidence of learner achievement by means of various forms of assessment (DBE, 2012).

Formative assessment, also known as assessment for learning (AfL), is an integral part of the learning and teaching process that requires active teacher-learner interaction as well as specific descriptive feedback to enhance learning and to move learners forward (Black and Wiliam, 1998; Clark, 2001; SAQA, 2014). Heritage (2007) regards formative assessment as the systematic process of continuously gathering evidence about learning. Hargreaves (2005, p.218) views teachers' conception of formative assessment as “measurement” of the learners' learning or “inquiry” as “reflecting (on), diagnosing . . .engaging with, understanding (of)” learners' learning. The SAQA (2014) policy notes that formative assessment includes both non-formal and informal assessments that are used primarily for improving teaching and learning activities. Summative assessment or assessment of learning (AoL) are employed by teachers to evaluate the achievement and progress of learners in a subject and in a grade (DBE, 2012). Various researchers (Brown, 2003; Hill, 2000) note that summative assessment is conducted to attest learner achievement and progress, to promote learners and to establish teacher, school, and system effectiveness. The learners' performance is recorded and reported to learners, parents, schools and other stakeholders to enable the planning of teaching and learning activities by teachers (DBE, 2012). The SAQA (2014) policy also notes that summative assessment is usually formal and aims to evaluate and/or certify learning that has taken place.

Despite the central role of formative assessment or assessment for learning advocated in the policy documents (Kanjee & Sayed, 2013), teachers have limited knowledge and experience in the effective use of assessment for improving learning and teaching (Kanjee & Mthembu, 2015; Kuze & Shumba; 2011; Van Laren & James, 2008). Moreover, there is a dearth of information on how teachers understand assessment, and in particular teachers' views and beliefs on assessment, teaching and learning and how this impact on the enhancement of learning and teaching in all schools in South Africa, across the socio-economic quintile categories.

To address this challenge, the School of Education at the Tshwane University of Technology (TUT) embarked on a comprehensive research programme to develop relevant strategies, systems and policies to enhance the use of classroom assessment, both formative and summative, for improving learning and teaching in South African schools. Specifically, the research programme sought to: (i) critically review current policies for schools and its impact on teacher assessment practices; (ii) implement a district-wide professional development programme in assessment for teachers; (iii) establish an integrated classroom assessment programme for pre-service teachers; and (iv) produce relevant assessment

learning and teaching materials and tools for use in schools and universities to support teachers in enhancing their classroom practice. This paper, however, only focuses on one aspect of this research programme, that is teachers' assessment practices and beliefs about learning and teaching.

To ensure effective implementation of the professional development programme for improving teacher knowledge, skills and practice regarding assessment, baseline information was obtained from teachers to be used in planning the programme as well as for the development of materials. Information was obtained on teacher beliefs and understanding of teaching, learning and assessment as these are reflected in how they conceptualise their roles in the classroom, their choice of classroom activities, and the strategies they use (Opre, 2015; Mui So & Hoi Lee, 2011). As noted by Opre (2015, p.229) "Examining teachers' beliefs provides a means for understanding the relationship between beliefs and student outcomes, and it also provides insight into teachers' classroom practices and pedagogy".

This paper reports on a study conducted by the authors as part of the larger district-wide professional development programme in assessment. The study reports on the results of a baseline survey conducted to determine teachers' knowledge and understanding of learners' learning, their teaching approach, the role of teachers and learners in the assessment process, and the implications of these on the implementation of the assessment for learning professional development programme. In addition, the study also sought to determine differences among teachers' approaches to learning and teaching in no-fee and fee-paying schools. In the next section, the theoretical framework underlying the study is presented followed by the key research questions. Next, the methodology applied to address these questions is presented, followed by a discussion of the results, highlighting implications for classroom practice regarding the application of formative assessment approaches. The paper concludes by noting areas for further research pertaining to teacher professional development, and for improving classroom practice across schools in the different poverty quintile categories.

Teacher pedagogy and classroom practice

Individual classroom environments, according to Schuh (2004), comprise complex interactions between teachers and learners that are prompted by several factors that include instructional practices, prescribed curricula, available resources and facilities, teacher and learner perceptions and beliefs as well as available support systems and accountability regimes that impact on schools. Similarly, Schweisfurth (2011) notes that the teaching and learning process in any classroom are deeply embedded in the cultural, resource, institutional and policy contexts in which they take place, and further argues that classroom interactions comprise the heart of pedagogy. Given the contested definitions and different understanding of the term pedagogy, in this paper, the following definition proposed by Alexander (2008, p.59) is used: "Pedagogy is the observable act of teaching together with its attendant discourse of educational theories, values, evidence and justifications. It is what

one needs to know, and the skills one needs to command, in order to make and justify the many different kinds of decisions of which teaching is constituted”.

For Westbrook, Durrani, Brown, Orr, Pryor, Boddy and Salivi (2013) teachers’ thinking and ideas are manifested in their overall pedagogic approaches and varies between teacher-centred and learner-centred approaches depending on the teachers’ teaching and learning experiences, training and the theories of learning that inform their practice. Schuh (2004), however, cautions against interpreting teacher-centred and learner-centred approaches as a dichotomy, arguing that teachers may find value in both these approaches as they develop and improve their understanding of the teaching and learning process. Similarly, Barrett (2007) argues that within the context of low-income countries, the polarisation between teacher-centred and learner-centred approaches is unhelpful as this simplification does not adequately recognise teachers’ values and ideas as well as their efforts to address their challenging contexts within which teaching and learning takes place. Barrett (2007, p.290) also notes that “it is possible to recognise and build on learners’ prior knowledge; to recognise and cater for different learning styles; to value individuals’ contributions and celebrate individuals’ achievements within a whole-class ‘teacher-centred’ practice”.

William (2013) states that teachers, learners and peers play a critical role in the learning and teaching process. Teachers are responsible for creating learning opportunities for learners to learn. The teacher-centred approach implies that teachers teach well and those learners who can, will learn, whereas a learner-centred approach entails engaging all learners and supporting all learners to master the learning objectives (Allen, 2004). A comparison between teacher-centred and learner-centred instruction are given in Table 1 (adapted from Allen, 2004).

Table 1: A comparison between teacher-centred and learner-centred instruction

Concept	Teacher-centred	Learner-centred
How learners learn	<ul style="list-style-type: none"> • Listening • Reading • Independent learning, often in competition for grades 	<ul style="list-style-type: none"> • Learners construct knowledge by integrating new learning into what they already know • Learning is viewed as a cognitive and social act
Pedagogy	Based on delivery of information	Based on engagement of learners
Course delivery	<ul style="list-style-type: none"> • Lecture • Assignments and exams for summative purposes 	<ul style="list-style-type: none"> • Active learning • Assignments for formative purposes • Collaborative learning • Community service learning • Cooperative learning • Online, asynchronous, self-directed learning • Problem-based learning
Effective teaching	<ul style="list-style-type: none"> • Teach (present information) well and those who can will learn 	<ul style="list-style-type: none"> • Engage learners in their learning • Help all learners master learning objectives • Use classroom assessment to improve courses • Use programme assessment to improve programmes

Westbrook *et al.* (2013, p.17) regard learner-centeredness as a situation where “teachers accept a more democratic and less authoritative role, know how to set up effective group work and tasks and to offer skilful supported instruction at the point it is needed”. Various studies regard learner-centredness as problem solving and higher order thinking skills (Megahed, Ginsburg, Abdellah & Zohry, 2008) where questions are asked to determine learners’ experience and pre-knowledge (Epstein & Yuthas, 2012) and to promote interactions between teachers and learners (Blum, 2009). But Tabulawa (2009) and Schweisfurth (2011) argue that teacher-centred practices do not automatically depict the learner as powerless.

In a learner-centred paradigm, teaching and assessing is interwoven and assessment is used to promote and diagnose learning (Huba & Freed, 2000). Atjonen (2014, p.19) found that there was an increase in interactions between teachers and learners and “reciprocal discussions” was a platform for learners to become assessors of their own learning. Cook-Sather (2002, p.5) concurs and state that “learners need to be the authors of their own understanding and assessors of their own learning”. However, to promote active learner participation in classroom discussions, Grossman, Hamerness and McDonald (2009) highlight three essential requirements: teachers’ question design, teachers’ monitoring of

learner participation and teachers' response to learner ideas. It is argued that a focus on a learner-centred approach and active participation of learners are key components to support learners' learning and to enhance learner achievement.

Active learning to elicit evidence of learning

According to Carr, Palner and Hagel (2015) active learning indicates learners' efforts to actively construct their knowledge. It accentuates higher order thinking, participation in activities, construction of new knowledge and building of scientific skills (Freeman, Eddy, , McDonough, Smith, Okoroafar *et al.*, 2014; Handelsman, Miller & Pfund, 2007). Song and Koh (2010, p.4) found that teachers who believe that learners are active participants of learning, require learners to monitor and assess their own understanding and "learn by knowledge construction". These authors also found that teachers who are interested in developing learners' understanding, employ dialogue and "rich questioning for student thinking" which was made noticeable through "student task and student talk" (2010, p.6). The teacher's ability to guide the learning process depends on his or her creativity in asking learners questions that are rich, relevant and thought-provoking (Wiliam, 2011). Similarly, Grossman *et al.* (2009) regards the core practice of teaching as teachers' learning about learners' understanding. This implies that teachers should elicit "student thinking during interactive teaching", anticipate student responses and "elicit further thinking" (Grossman *et al.*, 2009, p.9). Learner-centred teaching approaches result in increased learner satisfaction (Kemm & Dantas, 2007) and motivation (Chung & Chow, 2004; Triantafyllakos, Palaigeorgiou & Tsoukalas, 2008).

In the teaching-learning process, teachers and learners share knowledge through classroom discussion, higher order questioning, reciprocal teaching and scaffolding. Mayer (2004, p.14) views learning as an "active process in which learners are active sense makers who seek to build coherent and organised knowledge". We maintain that learners co-construct knowledge through the teaching of the teacher and teaching each other under the guidance of the teacher with the purpose to bridge the gap between where the learners are and where the teacher wants them to be. It implies that learners are active participants in their own learning.

Theories of learning

A key factor impacting on teachers' pedagogic approaches applied in the classroom pertains to the specific theories of learning that inform their practice. In their review curriculum, pedagogy and teaching practices in developing countries, Westbook *et al.* (2013) found four theories of learning that underpin different pedagogic approaches: behaviourism, constructivism, social construction, and critical pedagogies. In the behaviourist perspective learning is viewed as organised stimulus-response associations (National Research Council, 2001). James, McCormick, Black, Carmichael, Drummond and Fox *et al.* (2007) note that the implications for classroom practice means that rewards or the withholding of rewards

are used to establish desired behaviours among learners, that complex skills can be taught by breaking it up and teaching and testing the pieces separately and that the focus is on learning facts and basic skills first before understanding new concepts or content. In the constructivist approach, the focus is on the mental models that learners employ to develop concepts and acquire language. Learning is seen as the process that involves analysing and transforming any new information (James *et al.*, 2007). In this approach, classroom practices are intended to support learners to build on current knowledge that matches their developmental stage, and to challenge learners to create new knowledge and reflect on their learning and understanding (Westbook *et al.*, 2013).

Social constructivists view knowledge as a social process that is mediated through cultural tools, especially language. Learning thus involves collaborative problem solving and participating in communities of practice. For social constructivists, classroom practice requires teachers to provide guided support or scaffold learning using a range of techniques that includes teacher modelling, direct instruction, enhanced teacher and learner-learner engagement as well as higher order questioning and reciprocal teaching (Westbook *et al.*, 2013). Critical pedagogies aim to transform existing relations of power which are regarded oppressive through developing learners' consciousness about their own oppression, and to act on the world as they learn in order to change it. In this approach, classroom practice is marked by the idea of teaching for change and involves a dialogic and reflective approach where the teacher is no longer an authoritative figure, but one that supports learners effect socio-political changes through social critique and political action (Westbook *et al.*, 2013).

Formative assessment strategies

In supporting teachers to improve their pedagogical practices, Wiliam and Thompson (2007) proposed the use of specific formative assessment strategies and techniques to learning and teaching within the classroom. The authors based their work on Ramaprasad's (1983, cited in Wiliam, 2011) three key processes in learning and teaching: establishing where learners are in their learning, establishing where they are going, and establishing what needs to be done to get them there. Wiliam and Thompson (2007) conceptualised effective formative assessment practices comprising five key strategies for improving learning and teaching: (i) Clarifying and sharing learning intentions and success criteria for assessment with learners; (ii) Engineering effective classroom discussions, activities and tasks that elicit evidence of learning; (iii) Providing feedback that moves learners forward; (iv) Supporting learners to serve as learning resources for each other; and (v) Supporting learners to take greater ownership of their own learning.

The key research questions of the study underlying this study, was to determine teachers' views and understanding of teaching, learning and assessment. The sub-questions were: (i) What are teachers' views on how children learn and the role of the learner in the teaching and learning process? (ii) What are teachers' approach to teaching and what strengths do they identify in their teaching approaches? (iii) What are teachers' understanding of their role, and the learner's role in the assessment process?

Methodology

This section provides an overview of the sample from which the data were obtained, the instruments used and the process followed to collect the data, and the analysis conducted to report results.

Sample

Data presented and discussed in this paper was obtained from a sample of 227 Grade 2 teachers from 86 primary schools randomly selected from two districts in Gauteng Province. The sample was selected for conducting the evaluation of the programme as a randomised-control trial involving 50 treatment and 50 control schools, stratified by school poverty quintile category, in order to determine the impact of the intervention on teachers' assessment knowledge and practices. However, for this study, questionnaire data were unavailable from fourteen schools. The realised sample thus included 53 respondents with one to five years' experience, 30 respondents had six to ten years' experience, 55 had between 11 to 20 years' experience, 62 had between twenty-one to thirty years' experience while 27 respondents reported having between 31 and 40 years' experience. All respondents were female. The number of respondents and schools per quintile category is given in Table 2.

Table 2: Teacher sample by school category

School category	Number of schools	Number of respondents
No fee	43	107
Fee paying	43	120
Total	86	227

Instrument

Data were obtained using a Teacher Assessment for Learning questionnaire. The questionnaire was developed based on the key assessment knowledge and skills postulated by Kanjee and Mthembu (2015), and comprised a series of open and close-ended questions pertaining to: (i) respondents' views and understanding of learning, teaching and assessment, the role of learners and teachers in the assessment process, and the Annual National Assessments; (ii) respondents' understanding of formative, summative, peer and self-assessment as well as the current assessment policy; and (iii) types of written feedback respondents provide to learners. Additional background information was also obtained on respondents' qualifications, experience, position in the school, age and home language. For this paper, the following questions were used: (i) What are YOUR views on how children learn?; (ii) What role does the learner have in the teaching and learning process?; (iii) What is YOUR approach to teaching?; (iii) List two strengths regarding YOUR teaching approach; (iv) What do YOU see as the teacher's role in the assessment process? (v) What do YOU see as the learner's role in the assessment process?

The questionnaire was administered to all participants in both treatment and control groups. All respondents selected to participate in the programme completed the questionnaire during the preliminary workshop held to introduce the professional development programme. This workshop was conducted before the programme intervention was implemented by staff of the School of Education at the Tshwane University of Technology

Analysis

Content analysis was used to analyse the data. Nieuwenhuis (2016) regards content analysis as a “systematic, replicable technique” that is used to categorise content according to themes. For each set of questions, the researchers ordered and analysed the data according to patterns and then coded them. Nieuwenhuis (2016, p.116) views coding as “marking the segments of data with symbols, descriptive words or unique identifying names”. The researchers read through the captured data and identified codes or key words. The responses were coded and divided in categories to determine patterns of similarities and differences. For example, the following codes regarding teacher views on how children learn “*children learn what is taught. They learn from the known to unknown*” was categorised as ‘Known to unknown’. Similarly, the following response “*They learn through play. Through repetition. Through games*” was categorised as ‘Through play’. Given the nature of open-ended questions, many respondents provided information that could be coded into separate categories. For example, the following response “*through play, through all his/her senses, through exploring*” was categorised as ‘Through play’ as well as ‘Through their senses’. For each question, responses that were irrelevant to the question were excluded from the analysis. For example, the following response “*Some are learning fast some are slowly*” was regarded as irrelevant and excluded from the coding. The data were reported in tables listing the percentage of responses found in each coded category. In addition, data were also disaggregated by school poverty status: no-fee and fee paying schools to ascertain if the poverty status of the schools in which teachers taught had any effect on their views and understanding of teaching, learning and assessment.

Results and discussion

The results reported in this section are based on data obtained from the teacher baseline questionnaire. Given the size of the sample, there are no claims that findings can be generalised to the population of South African primary schools and teachers. The study was exploratory and makes recommendations for the professional development programme that will be conducted by the authors based on its findings. It is also the authors’ intention that the findings contribute to further debate and research about assessment policy and practice in South African schools.

Respondents’ understanding of how learners learn

In analysing responses to the question “What are your views on how children learn?”, the following four key themes emerged: from the known to the unknown; through play; through

their senses and by active participation (see Table 3). The most common response was ‘Learning from play/roleplay/games and active participation’ (47%) while learning from the ‘Known to unknown/ concrete to abstract’ (29%) was next, followed by ‘Through their senses’ (24%). Typical responses provided by Grade 2 teachers include: “*Children learn by doing*” and “*they learn through practical activities and games*”. As noted in Table 3, 50% of the responses from no-fee schools and 43% of responses from fee schools indicated that active participation plays a crucial role in the learning of learners. This finding correlates with a study by Hargreaves (2005) who found that teachers described learning as a “process of development” where learners pick up ideas, think, comprehend and are “empowered.” The focus is on the learning process (Vygotsky, 1978; Watkins, Carnell, Lodge, Wagner & Whalley, 2001) where learners become co-constructors of knowledge in the classroom.

Table 3: Respondents’ understanding of how learners learn (missing = 9)

	Total		No-fee schools		Fee paying schools	
	n	%	n	%	n	%
Children learn: Through active participation/ play/games/role play	228	47	127	50	101	43
From known to unknown; concrete to abstract	142	29	77	30	65	28
Through their senses	116	24	49	19	67	29
Total	486	100	253	100	233	100

Respondents’ understanding of the role of learners in the teaching and learning process

In answering the question “What is your understanding of the role of learners in the teaching and learning process?”, the majority of respondents (54%) indicated ‘Active participation’. For example, one respondent noted that the learner “*has an active role in the teaching and learning process*”, while another stated that learners “*must participate and engage in the learning process*”. This finding is aligned to teachers’ understanding of how learners learn, and signifies teachers’ acknowledgement that learners should be actively involved in the learning process, and their awareness of its importance in the classroom. A review of responses from fee and no-fee schools indicate no significant differences.

Other responses listed include: ‘Listen attentively’ (22%) and ‘Ask questions’ (12%), ‘Acquire knowledge’ (8%) and ‘Voice their thoughts’ (5%). These responses highlight the contradictions among respondents with some supporting views of active participation (i.e. ‘Ask questions’, ‘Voice their thoughts’) and others listing the role of learners as being passive receivers of knowledge (‘Listen attentively’ and ‘Acquire knowledge’). Here too, a review of responses from fee paying and no-fee paying schools indicate no differences. However, it is significant that very few responses (10% from no-fee schools and 13% from fee paying schools) viewed learners’ questioning as a significant activity in the learning process. Moreover, even fewer respondents (3% from no-fee schools and 6% from fee paying schools) acknowledged the importance of learners’ voices in the learning process.

Table 4: Responses regarding learners' role in the learning and teaching process (missing = 16)

	Total		No-fee schools		Fee paying schools	
	n	%	n	%	n	%
Active participation	131	54	62	52	69	57
Listen attentively	52	22	31	26	21	17
Ask questions	28	12	12	10	16	13
Acquire knowledge	19	8	11	9	8	7
Voice their thoughts	11	5	4	3	7	6
Total	241	100	120	100	121	100

Respondents' understanding of their approach to teaching

Respondents were also asked to indicate their approach to teaching. As noted in Table 5, most respondents listed 'Teaching from the known to the unknown' (39%). The responses of teachers from no-fee schools (45%) were slightly less than double that of teachers from fee paying schools (27%). Typical responses listed include: "*starting from what children know to what they don't know*" and "*teach from the known to the unknown*". Other responses that were perceived as central to the teaching and learning process included teaching approaches that are 'Learner-centred' (30%); that 'Involve learners actively' (18%), and that show a 'Positive attitude' (14%). For example, one respondent remarked: "I use a learner-centred approach" while another noted "*I encourage all learners to participate actively*". Thirty-one percent of respondents from no-fee schools and 26% from fee paying schools indicated their teaching approach as learner-centred (Table 5), while actively involving learners in the classroom was noted in 9% of the responses from no-fee schools and 33% of the responses from fee paying schools, highlighting large differences in approaches between school poverty status regarding learner involvement in class.

A learner-centred teaching approach implies the creation of many opportunities for learners' active engagement in the teaching and learning process, but the findings indicated minimal engagement of learners. Respondents from both no-fee and fee paying schools should enhance their use of activities and techniques that actively involve learners in their own learning. The findings for this section are in contrast with a study by Song and Koh (2010). These authors found three factors related to learner-centeredness that are imperative in the change of teachers' practice towards formative assessment: (i) teachers' beliefs of learners as active participants in learning, (ii) their beliefs about learners' need to monitor and assess their own understanding and (iii) their beliefs about learners learning by knowledge construction.

Table 5: Respondents' understanding of their own approaches to teaching (missing = 23)

	Total		No-fee schools		Fee paying schools	
	n	%	n	%	n	%
Teaching from the known to the unknown	121	39	89	45	32	27
Learner-centredness	93	30	62	31	31	26
Involve learners actively	56	18	17	9	39	33
Positive attitude	44	14	29	15	15	13
Total	314	100	197	100	117	100

Respondents' understanding of the strengths of their teaching approach

When asked to indicate their strengths regarding their teaching approach, the majority of respondents listed 'Planning and preparation' (38%), and 'Involvement of learners' in the lesson (36%). Typical responses provided by respondents included: "*my preparation*"; "*well prepared for the lesson*"; "*teaching skills*" and "*marking my work at all times*". However, a large percentage of responses provided by teachers to this question could not be readily allocated into any relevant category and were regarded as not applicable. For example, one respondent noted "*agreeing on ground rules*", another specified "*doing research*" and yet another listed "*hand out stars for good work*". For all three categories listed, differences between the fee paying and no-fee schools were minimal. The importance of learner involvement/participation is highlighted once more in the teacher responses, albeit with similar percentages focussing on operational rather than pedagogical issues as their key strengths. This finding is concerning given results reported by Trigwell, Prosser, and Waterhouse (1999) who found that where teachers who describe their approach to teaching as having a focus on what they do and on transmitting knowledge, learners were more likely to report that they adopt a surface approach to the learning of that subject.

In addition, 21% of the respondents also listed 'Make teaching interesting' as one of their strengths, with similar percentages noted between no-fee (22%) and fee paying schools (20%). However, specific meaning of to 'Make teaching interesting' and its implication on classroom practice requires further investigation. More concerning, however, is the percentage of responses that noted 'Questioning' (2%) and 'Assessment' (3%) as strengths. Only four and seven percent of respondents from fee-paying schools listed 'Questioning' and 'Assessment' respectively as key to learning, with no respondents from no-fee schools indicating these options. The limited focus on assessment and questioning, considered a key strategy in the use of formative assessment approaches (Wiliam & Thompson, 2007), is aligned to findings by Kanjee and Mthembu (2015) who reported the low levels of formative assessment literacy among teachers in their study.

Vavrus, Thomas and Bartlett (2011) contend that these practices are typical of a teacher-centred approach, and argue that learner-centred pedagogy demands a different way of assessing learners as learning is equated with far more than acquiring facts and figures,

and learners should be able to demonstrate their ability to understand concepts and not only restate them. Proposing possible reasons for this, according to Tongpoon-Patanasorn (2011) could be attributed to teachers' partial knowledge and misconceptions regarding learner-centeredness, which impacts negatively on the performance of learners. We argue that a change in teachers' knowledge and practice of formative assessment is possible if they are made aware of the advantages of active learning, the role of learners as co-constructors of knowledge (Vygotsky, 1978) and practical ways to create opportunities for learners to take responsibility for their own learning.

Table 6: Respondents' understanding of the strengths of their teaching approach (missing = 16)

	Total		No-fee schools		Fee paying schools	
	n	%	n	%	n	%
Planning and preparation	56	38	31	42	25	34
Involvement of learners	53	36	27	36	26	35
Make teaching interesting	31	21	16	22	15	20
Questioning	3	2	0	0	3	4
Assessment	5	3	0	0	5	7
Total responses	148	100	74	100	74	100

Respondents' understanding of the purpose of formative assessment

Respondents were also asked to provide a definition of formative assessment. A high percentage (59%) across both school categories listed 'Formal assessment or testing', representing 61% responses from no-fee schools and 56% from fee paying schools. It appears that these teachers conflated formative assessment with summative assessment. For example, responses included "*assessment after learning*"; "*assess what has been learnt*" and "*testing related to learning purposes*". Very few responses (6% from no-fee schools and 10% of fee paying schools) indicated that formative assessment is used to improve teaching and learning, while 7% of respondents indicated 'Assess for understanding'. Similar findings were reported by Crichton and McDaid (2016) as well as Boyle and Charles (2010) who found that teachers' understanding of the concepts and principles of formative assessment were inadequate. Furthermore, Crichton and McDaid (2016) note that teachers are unaware of the impact of the key strategies on learners' learning. Similarly, Song and Koh (2010) note that even though teachers believe that learners need to assess and monitor own understanding, they may not possess the knowledge and skills to effectively use formative assessment in the classroom. In South Africa, Le Cordeur (2014) found that teachers spent too much time on standardised tests and that this has contributed to their inability to effectively use assessment to support learners' creativity, innovation and independent thinking. In this context, relevant professional development programmes are critical to equip teachers with the key assessment competences that will enable them to apply relevant formative assessment strategies to improve learning.

Table 7: Respondents' understand of the purpose of formative assessment (missing = 70)

	Total		No-fee schools		Fee paying schools	
	n	%	n	%	n	%
Formal assessment or testing	115	59	62	61	53	56
Assess what learners learn	51	26	26	26	25	26
Assess to improve teaching and learning	16	8	6	6	10	10
Assess for understanding	14	7	7	7	7	7
Total	196	100	101	100	95	100

Respondents' understanding of the key strategies of formative assessment

When asked if they knew the key formative assessment strategies (Wiliam & Thompson, 2007), and to list these, 62% of responses indicated 'Do not know', while a significant number of respondents (78 of the 227 participating teachers), left this question blank (see Table 8). While this finding was not unexpected, given the lack of exposure and/or use of formative assessment strategies in South African schools (Kanjee & Croft, 2012; Kanjee & Mthembu, 2015), it is concerning as research indicates that teachers' limited knowledge and understanding may impact negatively on learning and teaching in the classroom (Black & Wiliam, 1998). 'Questioning' was listed in 22% of responses with only a small percentage (16%) noting any of the other strategies ('Feedback', 'Peer and self-assessment' and 'Learning objectives'). Responses from teachers in fee and no-fee schools were very similar. More concerning was that the value of learner dialogue and engagement within the classroom did not feature in any of the responses provided. Poor knowledge regarding these key issues may impact on the teachers' ability to identify and/or address specific learning gaps among their learners. Brodie (2007) as well as Leahy, Lyon, Thompson and Wiliam (2005) regard the question-and-answer method as an integral part of the teaching and learning process, since learners are provided with opportunities to engage with the teacher. Leahy *et al.* (2005) also note that the traditional model of classroom questioning allows learners to disengage from the classroom by keeping their hands down.

Table 8: Respondents' understanding of the key strategies of formative assessment (missing = 78)

	Total		No-fee schools		Fee paying schools	
	n	%	n	%	n	%
Do not know	80	62	32	52	48	70
Questioning	29	22	13	21	16	23
Feedback	12	9	10	16	2	3
Peer and self-assessment	7	5	4	7	3	4
Learning objectives	2	2	2	3	0	0
Total	130	100	61	100	69	100

For Al-Zu'be (2013), these practices are evident of a teacher-centred approach with the emphasis on monitoring learning, rather than on diagnosing and improving learning. To enhance learner engagement during lessons, these authors propose the use of ‘no-hands-up, except-to-ask-a-question’ approach, where the teacher decides whom to call upon to answer a question. Leahy *et al.* (2005) also argue that this approach has the potential to increase learner participation significantly as learners know that they need to stay engaged because they may be called upon at any time during the lesson. These findings correspond with Kuze and Shumba (2011), Kanjee and Croft (2012) as well as Kanjee and Mthembu (2015) who indicate a lack of assessment knowledge and practice amongst teachers across all different school categories. Moreover, Valencia, Valenzuela, Sloan and Foley (2001) point out that teacher quality is a highly significant factor that determines the equity of schooling that children receive. Noguera and Pierce (2016) agree that not all learners “are served equally well”. We maintain that teachers’ competence in eliciting evidence of learning and creating opportunities for active participation in the classroom may enhance their academic achievement.

Respondents’ views regarding their role in the assessment process

In response to the questions, ‘What is the teacher’s role in the assessment process?’, the majority of the responses (37%) listed ‘Determining learners’ understanding’, followed by ‘Marking, analysing and recording of the marks’ (35%) and ‘Providing feedback to learners and parents’ (29%). One respondent remarked, “. . . to assist the teacher if there is a need to change the teaching and learning method”; another noted, “. . . to provide guidance and assistance” and one respondent noted, “to assess learners continuously and give report to the parents about learners’ progress”. None of the respondents listed their role as assisting or supporting learners to improve learning or to enhance learners’ understanding of the content. The predominant theme across these responses indicated a greater emphasis on summative rather than formative assessment, supporting the findings of Kanjee and Mthembu (2015) who found that while all teachers in their study demonstrated limited knowledge and understanding of formative assessment, their understanding of summative assessment was more advanced. The authors echo the call for capacity development programmes that support teachers to make a meaningful connection between summative and formative assessment to enhance their knowledge and skills in the effective use of assessment for improving learning and teaching (Kanjee & Mthembu, 2015; Yan & Cheng, 2015).

Table 9: Teacher responses regarding their role in the assessment process (missing = 17)

	Total		No-fee schools		Fee paying schools	
	n	%	n	%	n	%
Determining learners’ understanding	55	37	35	41	20	31
Marking, analysing/recording marks	52	35	27	32	25	38
Feedback to learners/parents	3	29	23	27	20	31
Total	150	100	85	100	65	100

Respondents' views regarding the role of the learner in the assessment process

In reviewing the response to the question, 'What is the learner's role in the assessment process?' an overwhelming majority of responses (71%), across both school poverty categories listed 'To learn, understand, ask and/or answer questions'. Interestingly, a small percentage (13%) also suggested that learners' role is to 'Identify learning barriers', as noted in the following response "*Learners must find out their errors and need to improve*". A very low percentage, 8% respectively, indicated that the learner's role is 'To apply the knowledge gained' and 'To reflect on the knowledge gained'. For example, one respondent noted, "*The learner must listen and concentrate and if he/she does not understand they must ask questions,*" while another indicated, "*. . . to read instructions and follow them, to understand what is being asked, to apply knowledge*". While these findings further reinforce the predominant beliefs and understanding among the respondents who regard learners as passive receivers of knowledge with little or no role in the teaching and learning process, it is encouraging that a small percentage of respondents also focussed on specific roles that place greater responsibility on learners for their learning.

Table 10: Respondents' views regarding the role of learners in the assessment process (missing = 24)

	Total		No-fee schools		Fee paying schools	
	n	%	n	%	n	%
To learn/understand/ask/ answer questions	91	71	46	72	45	70
Identify learning barriers	17	13	8	13	9	14
Apply knowledge gained	10	8	5	8	5	8
Reflect on knowledge gained	10	8	5	8	5	8
Total	128	100	64	100	64	100

Conclusion and implications

The purpose of this paper was to explore Grade 2 teachers' knowledge and understanding of learners' learning, their teaching approach and the role of teachers and learners in the assessment process. The current curriculum and assessment policies served as the basis for analysing teachers' understanding and beliefs regarding learning, teaching and assessment. This study was exploratory in nature and was not intended to provide a comprehensive review of assessment practices in South African schools. Given the centrality of assessment in teachers' pedagogical practices, and growing realisation of its impact on improving learning and teaching in South Africa (Kanjee & Mthembu, 2015; Kuze & Shumba, 2011; Reyneke, Meyer & Nel, 2010), findings from the study are intended to add to continuing debates, and to emphasise areas for further research that are noteworthy for policy makers and researchers, for improving the use of assessment to enhance learning and teaching in schools.

The overall conclusion from all the collected data combined, is that this sample of respondents demonstrated a predominantly teacher-centred approach, with minimal opportunities created for learners to actively participate in the teaching and learning process. While most respondents believe that learners learn through active participation, it is questionable whether these beliefs would be translated into practice. Respondents in this study also displayed a superficial understanding of the notion that learners should be active participants in their own learning, nor did they demonstrate any evidence regarding the need for teachers to create opportunities to elicit evidence of learning through questioning. These findings correspond with studies by Kuze and Shumba (2011), Kanjee and Croft (2012) as well as Kanjee and Mthembu (2015) who reported limited assessment knowledge as well as poor practice amongst teachers across all quintile schools. Furthermore, Ackay and Yager (2010) found that a learner-centred approach resulted in learners scoring higher in the understanding and use of science process skills. Learners in their study also demonstrated a more positive attitude towards science and they applied basic science concepts to new situations with significantly more confidence than the learners in a teacher-centred situation.

Another aspect that emerged from this study pertains to the limited value ascribed to questioning and assessment as key to their pedagogical practice. None of the respondents from no-fee schools and very few respondents from fee paying schools indicated these as a strength of their teaching approach. Questioning and assessment are crucial in establishing where learners are in their learning, where teachers want them to be and determining what needs to be done to get them there (William, 2011). A key concern is that most respondents mentioned types of questions related to summative assessment rather than formative assessment. A possible reason for this can be attributed to the limited knowledge about formative assessment. In their study with Foundation Phase teachers, Kanjee and Mthembu (2015) found low levels of assessment literacy among teachers, and reported that while teacher understanding of summative assessment was noticeably higher, the majority of teachers demonstrated very poor understanding of formative assessment.

Respondents across all quintiles displayed inadequate knowledge and understanding of formative assessment and how to effectively use relevant assessment strategies to improve learning. Given the significant disparities between schools, and teachers, across fee paying and no-fee schools (Chutgar & Kanjee, 2009), it was assumed that the better-resourced schools with highly qualified and experienced teachers would engage in classroom practices that are more in line with the formative assessment approaches. However, the poor knowledge of teachers is not surprising, given the limited guidelines provided on formative assessment in national policy documents (Kanjee & Sayed, 2013), as well as the limited training and professional development programmes available to teachers for improving teacher assessment knowledge and skills (Kanjee & Mthembu, 2015; Popham, 2008). While this finding warrants additional research, it does question the nature, content and effectiveness of teacher assessment practices in identifying and addressing specific learning gaps of learners, especially those in the well-resourced 'fee' schools.

An important point to consider is whether the national policies for assessment themselves have been instrumental in helping to fashion classrooms as summative assessment driven environments or whether the current state of classroom resources and established traditions

of South African pedagogy have been a predominant influence on the formation of current assessment policies. Traditions of pedagogy within South African schools, the availability of resources within the classrooms, the goals of outcomes-based curricula and increasing levels of accountability have all been instrumental in forming the assessment policies, and have impacted significantly on teaching, learning, and assessment within the classrooms. This seems consistent with the expectable outcomes of current national policies for assessment, where the accrual of marks from frequent formal teacher-made tests was privileged over effective feedback policies which Kanjee and Sayed (2013, p.444) refer to as “assessment focused but measurement driven”.

While this study was based on a sample of 86 schools, the findings correlate highly with those of other studies conducted in South Africa (Kanjee & Mthembu, 2015; Kuze & Shumba, 2010; Vandeyar and Killen, 2007). These findings are important as they highlight the need to improve teachers’ understanding of assessment for improving learning in all schools across the different quintile categories, if the requirements specified in the assessment policies (DBE, 2012) are to be effectively implemented. However, there is a need for further research to determine the extent to which these findings are generalisable to the larger population of schools. As argued by Mui So and Hoi Lee (2011), teachers need to be made aware of their understanding of teaching and learning and their existing assessment practices. Similarly, Bolton (2009) argues that teachers need to be exposed to a wider range of classroom assessment strategies and techniques, especially those relating to formative assessment. To empower teachers to recognise the need to change their teaching approach and assessment practices, Bolton (2009) calls for teachers to be made aware of their own agency and power in using assessment to further develop their pedagogical practices.

The implications of this study for professional development programmes calls for the findings to be effectively applied to: (i) enhance teachers’ knowledge and understanding of both teacher and learner-centred approaches, its value for, and implications on, classroom practices; (ii) review current understanding on the roles of teachers and learners in the assessment process, and as well as to encourage teachers to recognise own power and agency to adapt their teaching practices for supporting improvement in learner’s learning; (iii) highlight the value and use of learner-centred approaches and its centrality in being able to use formative assessment for improving learning and teaching; (iv) apply approaches and techniques during the professional development programme to support teachers obtain evidence from their own learners on the value of learner participation, and the impact of formative assessment strategies on their classroom practices. A key approach to further investigate pertains to supporting teachers to obtain their own evidence, which may result in “cognitive dissonance, to highlight discrepancies between what teachers already know or believe, and new evidence which will allow them to accommodate and adopt new ideas” (Atherton, 2013, p.2). Ultimately, findings from this study call for further research to conclusively determine whether the ideas discussed will work in practice, within the context of learning and teaching in South African schools, and whether any professional capacity development programmes can succeed in supporting teachers to enhance their knowledge and skills to effectively use formative assessment approaches to improve learning for all.

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