In-service teacher education: asking questions for higher order thinking in visual literacy

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The kinds of questions teachers ask may thwart or promote learner high-order thinking; teachers themselves must have expertise in questioning skills to promote higher order cognition among learners. Drawing on experiential knowledge of assessment, and as an English-teaching professional development programme (PDP) facilitator, I demonstrate that within the framework of a carefully structured subject-specific PDP, teachers can be taught how to enhance thinking skills in the English visual literacy (VL) learning classroom. Guided by an earlier taxonomy of cognition, and using qualitative methodology, the paper analyses data obtained from: (i) observation notes and examination equivalents of 40 teachers from various public schools in Gauteng who were engaged in the Advanced Certificate in Education (ACE), English specialization programme; and (ii) a case study of three teachers by means of semi-structured interviews, and a study of their lesson plans and worksheets. The paper examines, specifically, teachers' choice of texts and questions asked, for English second-language learners for the teaching of VL. It concludes by suggesting that if teachers themselves are first engaged in the cognitive processes they wish learners to acquire, they are better positioned to promote higher order among their learners.

Keywords: classroom questions, collaborative teacher practice, English language teachers, higher order thinking, professional development programme, taxonomy of cognition, visual literacy

Introduction and background

A person's performance in any field of life is measured by some form of assessment or evaluation according to some predetermined criteria, and more so in formal education. Assessment tasks, no matter the form adopted, benchmark grade promotion, post school admission and even job attainment. The quality of teachers too, is measured by the performance of learners on assessment tasks (Mestry, Hendricks & Bisschoff, 2009:475). The education crisis in South Africa, evident by the Progress in International Reading Literacy Study (PIRLS, 2006) assessment and Grade 12 results, is alarming when one considers that a learner passes through the schooling system over a period of a minimum of 12 years. Numerous factors such as socio-economic background of learners, lack of resources, poor teacher pedagogical content knowledge, lack of professional collaborative practices and poor instructional leadership (Christie, 1998, 2008; Bloch, 2009) contribute to the literacy and education crisis. However, drawing on evidence from my role as quality assurer of a Grade 12 language paper as

well as reports on classroom observations of teacher trainees, this paper proposes that one of the key contributing factors is that teachers do not ask learners questions or set activities that engage them in thinking at different levels as those provided in the educational taxonomies of, for example, Bloom (1956), Anderson and Krathwohl (2001) and Barrett (1968).

Further experience with school leaders and teachers of various districts in Gauteng, as well as interactions with teachers within the ACE programme (a 2-year professional development course, in a chosen field of specialization, for practising teachers who want to upgrade their qualifications) shows that even though the Department of Basic Education (DoE) has made the literature on Bloom's taxonomy of cognition available – in the form of a chart – to all schools for all classrooms, teachers do not fully understand the meaning of each cognitive level and how to apply the taxonomy for effective teaching and learning. It appears that some teachers do not have the key to unlock learners' minds and create cognitive pathways that eventually lead to the literacy skills that enhance scholastic performance. While there is an abundance of literature on questions in the classroom from other countries (for example, Black & Wiliam, 1998; Black, Harrison, Lee, Marshall & Wiliam, 2004; Napell, 1978; Chappuis & Stiggins, 2002), literature on the kinds of questions teachers ask is almost non-existent in South Africa. There appears to be no research done on the types of cognitive questions that teachers engage their learners in, for learning, and for formative assessment.

I suggest that a preparation for school assessments, informal and formal, begins with the kind of questions and learning tasks that teachers ask in the classroom; and that teachers can be taught, through collaboration, within a carefully structured subject-specific professional development programme (PDP) what types of questions should be asked to engage learners in the different levels of thinking. Within this context and two of McKinsey & Company's (2007:16) three guiding principles on which to base change *viz*. (i) "The quality of an education cannot exceed the quality of its teachers"; and (ii) "the only way to improve outcomes is to improve instruction", the question that this study raises is: Can teachers, through a carefully structured subject-specific and content-specific PDP, be 'taught' how to choose appropriate texts and ask types of questions that promote thinking at different cognitive orders? Using qualitative methodology, this study investigates the development of in-service teacher ability to select visual texts that can yield questions of varying cognitive levels, and the ability to ask such questions. It examines, specifically, teachers' choice of texts and kinds of questions for English second language (ESL) learners for the teaching of visual literacy, interview transcripts, and teacher lesson plans and worksheets given to high school learners.

Teacher professional development

In 2007, the National Policy Framework for Teacher Education and Development, designed to give greater coherence to quality teacher education, acknowledged that

different forms of professional support are needed for different kinds of teachers. A report by National Education Evaluation and Development Unit [NEEDU] (2009:26) shows that PDPs were mostly unsuccessful and that SACE (the South African Council of Educators, which coordinates the professional development system) faces numerous challenges in changing teacher negative attitudes and culture towards continuous professional development and learning. Perhaps, as Burbank and Kauchak (2003:500) argue, one of the telling reasons for this is that teachers tend to engage in anecdotal interchanges instead of "true collaboration (which) involves equity and mutual participation". In South Africa, PDPs for in-service teachers, despite the crisis in education, are not a priority; while some universities offer sustained programmes, too often elsewhere they are 'fly-by-night' short courses by service providers. While Wood (2010) shows that specialized seminars and workshops for teachers promote teacher efficacy, the general lack of success of short courses (see Ono & Ferreira, 2010) may be mostly attributed to the use of "outside experts" who focus on technical knowledge (Lieberman, 1995:2-3) rather than promoting deep pedagogical content knowledge (Moodley, 2006). This view is echoed by Burbank and Kauchak (2003:500) who point out that "one of the major limitations of traditional models of professional development is the passive role imposed upon teachers, who find it difficult to implement ideas that are often conceptually and practically far removed from their classrooms." They suggest that in-service teachers should be given opportunities for "true collaboration", which involves "mutual participation". According to Darling-Hammond (2005), this entails teaching that should aim for deep understanding – which includes assessment for learning and assessment of learning. In addition, Mestry et al. (2009:488) in their survey of the benefits and process of teacher development show that there is need for "a coherent and integrated professional development plan that grows out of the school vision for learner success to which teachers are committed." Even though PDPs are fraught with challenges and numerous factors contribute to poor learner performance, my observations of the ACE English language teachers who inform this research; critiques of the National Senior Certificate (NSC) English, Afrikaans and African language papers (see Moodley, 2012) and salient studies on classroom questioning suggest that PDPs in questioning techniques is one avenue that could be addressed for promoting classroom teaching and learning.

In designing the ACE: English Teaching programme, the approach employed was to engage the in-service teachers in collaboration with the facilitator and with one another; to involve them in planning and carrying out their own learning; and to encourage them to apply their own and their learners' interests. In collaborating in groups, teachers were able to interrogate each other's choice of texts and questions posed; and guided by Bloom's (1956) taxonomy, manipulate and change simplistic, lower order questions to those that require higher order thinking. Implicit in this approach is the acknowledgement that in-service teachers bring in a wealth of experiential and metacognitive knowledge into their own learning experience as students,

and the recognition that they can be active and empowering agents of change in the classroom.

Assessment for learning and of learning

When one speaks of assessment, one normally associates it with formative assessment that occurs as an end product of learning or assessment *of* learning. Chappuis and Stiggins (2002:40) state that we typically think of assessment as "an index of school success rather than a *cause* (my emphasis) of that success" and Shepard (2000) points out that the use of assessment in the classroom as a tool to promote greater learner achievement is often absent. Too often, classroom instruction assessment and formative assessment are seen as dichotomies rather than being, as Black and Wiliam (1998: 141) note, "indivisible" practices. Black et al. (2004:10) describe assessment for learning as 'any assessment for which the first priority in its design and practice is to serve the purpose of promoting students' learning as distinguished from assessment of learning which is 'designed primarily to serve the purposes of accountability or of ranking, or of certifying competence'. In this study, the term "assessment" is used for assessment of both *for* and *of* learning.

Just over two decades ago, Wilen (1991) observed that teachers spend most of their time asking low-level cognitive questions that concentrate on retrieval of factual information. While there exists a plethora of evidence over the years to support the positive effects of high-level cognition (for example, Schafersman, 1991; Carroll, 2000; Kabilan, 2000), there are others such as Gall (1984:41) who show that emphasis on low-cognition questions is "more effective for promoting young disadvantaged children's achievement" and emphasis on high-cognition questions is "more effective for students of average and high ability …" This study argues that low-cognition questions are a starting point of the scaffolding process to high-order cognition for all ability groups and that a failure to extend learners' thinking beyond low-order levels is a subtractive mode of teaching and learning. In addition, any suggestion, albeit unintended, that low-order questions are effective for 'disadvantaged children' promotes low expectations of these children, and in the broader scheme, contributes to the 'rich get richer, and poor get poorer' syndrome. Instead, asking carefully scaffolded questions as everyday classroom practice would break the yoke of poor questioning practices.

In their groundbreaking study on how improved formative assessment raises students' achievement, Black & Wiliam (1998:141-142) proclaim that the everyday practice of assessment in classrooms is beset with problems and shortcomings, the most significant of which is that formative testing encourages rote and superficial learning, and that priority is given to recording of marks rather than assessment for learning. This scenario is a typical description of many public schools in South Africa and is an issue that this study attempts to address. In spite of the emphasis on the shift from teacher driven, information transmission classrooms to learner active, thinking

classrooms, many teachers continue to teach learners what to think rather than how to think. They limit their questions to close-ended, rhetorical and literal ones, inadvertently stifling learners' intellectual growth, hence contributing to their poor literacy and scholastic performance. In a subsequent study of 24, primarily Physical Science, Maths and English teachers, Black et al. (2004) conclude that effective questioning is important for learner development and that teachers should spend more time in framing 'worthy' questions. Similarly, in her study of the use of questions for enhancing classroom learning, Napell (1978:188) states that poor questions "stymie students' intellectual development" and conversely, effective questions "change students from passive classroom spectators to active, creative participants in the learning process". Research conducted by Columba (2001:372-373) on classroom assessment techniques also shows that teacher questions allow teachers to check for understanding, obtain information and provide indirect cues. Her research indicates that "certain aspects of teacher questioning are related to student learning" and therefore "no teacher should underestimate the value of good (questions)". The challenge is ascertaining how teachers attain the knowledge and expertise to ask the kind of questions that transform learners from "passive spectators", rote learners, and low-cognitive response providers to critical, creative thinkers. Traditionally, and as on-going practice, an educational taxonomy, in which the categories lie within a continuum, is provided as a tool for teachers to make sense of their statement of lesson outcomes and help formulate questions to enhance learning in the classroom.

The crafting of questions is informed by Bloom's (1956) taxonomy of cognition (as it is that which is – debatably – employed by the DoE examining body (DoE, 2008). It comprises six categories, *viz. Knowledge, Comprehension, Application, Analysis, Synthesis* and *Evaluation* (Bloom, Engelhart, Furst, Hill & Krathwohl, 1956) ordered by cognitive complexity. It is also the taxonomy that the DoE makes available to schools nation-wide and expects teachers to draw on in their teaching and assessment practices – in spite of its criticisms (for example, Pring, 1971; Kreitzer & Madaus, 1994) and even though Anderson & Krathwohl (2001) have presented a revised two-dimensional taxonomy *viz*. cognitive process and knowledge framework. One of the (questionable) minimum standards for assessment in NSC papers is that questions should comprise 40% low-order questions (*Knowledge*), 40% middle-order questions (*Comprehension* and *Application*) and 20% high-order questions (*Analysis, Synthesis* and *Evaluation*), which should be scaffolded for levels of cognitive complexity. However, for the large majority of teachers, as pointed out earlier, the cognitive taxonomy is not well understood and therefore not successfully translated into classroom practice. Consequently, as Vandeyar & Killen (2007:112) note, educators who do not understand or have the necessary skills limit their strategies to that which they know.

Data collection procedures

The study is a qualitative one in that it reflects on the process of engaging teachers in collaborative, active learning in finding suitable resources for the assessment for and of VL; asking low-order (LO), middle order (MO) and high-order (HO) questions (Qs) that will promote learning in the classrooms; and examining the quality of texts and questions they ask in their examination equivalent (EE) scripts. (However, the quality of the resources and questions are rated according to a rubric used to assess teachers' work and are presented quantitatively.) In addition, in an attempt to ascertain teacher transfer of knowledge and skills acquired from the ACE programme to classroom practice, following thwarted efforts at attaining access into the ACE teachers' class-rooms, I carried out a case study of three volunteer teachers: I conducted semi-structured individual interviews; and examined their lesson plans, and worksheets designed for learners. All participants gave consent for data collection. At this point I present a note of caution: as the study is qualitative and of small scale, it lacks generalizabilty. However, as Adelman, Jenkins and Kemmis (1980, in Myers, 2000) note, the knowledge generated by even single study qualitative research is significant in its own right, and if aggregated, could allow theory building.

The participants were 40 in-service teachers who were engaged in *ACE: English Teaching* programme. The class was a multilingual one. Except for one teacher for whom English is the first language (L1), the remaining 39 teachers were English additional language speakers whose L1 is any one of the 9 African official languages of South Africa. The large majority of the participants, 39, were teachers who were teaching English first additional language (EFAL) from Grade 8 to Grade 12 at public schools in various parts of Gauteng. Only one teacher was teaching English Home Language (HL). Of the three case study volunteer participants (who draw from the larger group of this study), one (Mrs N) teaches English as an HL to a group of mostly English additional language (EAL) learners, and the other two (Mr R and Miss A) teach English as first additional language (FAL) to ESL speakers. In their first year of study, these teachers completed three modules. This study draws on one of these modules and focuses on the teaching of aspects of VL, *viz.* advertisements and car-toons, as this unit addresses the National Curriculum Statements (NCS) for Grades 8 to 12 and forms a crucial component of formative and summative assessments at school, provincial, and national levels.

The data obtained from the class participants comprise details of a two-step tea-ching process within the programme and an examination of EE scripts of two ques-tions: one on advertisements and the other on cartoons. With regard to the former, I outline the content knowledge mediated to the teachers and present the observation notes thereof, and the process of how the teachers were engaged in finding appropriate texts and designing authentic VL questions (see Moodley, 2012) using Bloom's taxonomy.

Step 1: Teachers were asked to bring in their own examples of advertisements and

cartoons. Following mediation on content knowledge on VL, working in pairs, they were asked to choose two advertisements and two cartoons (of those provided in their course material, respectively), for a Grade 10 class. They were then required to discuss the texts and set questions and/or activities on them. The purpose of this part of the lesson was to ascertain what knowledge and classroom practices teachers were bringing into their own learning experience; and to inform me on how to proceed with the teaching of assessment for and of VL. At this point the collaboration was only between pairs of teachers while observations notes were recorded. This exercise revealed that the teachers had a basic understanding of the texts but did not how to probe with HOQs for promoting learning. Hence, I proceeded with Step 2, a carefully designed Powerpoint presentation (PPT).

Step 2: The aims of the PPT were to: (i) introduce and discuss the concept scaffolding using Bloom's (1956) taxonomy; and (ii) work in collaboration to set LO, MO and HO questions on advertisements and cartoons. At this point teachers were alerted, by illustration, that despite the distinctive categories in the taxonomy, some questions by their very structure can blur the boundaries, and a single question could contain different cognitive components. Thereafter, teachers were given a past year Grade 12, English L2 NSC examination paper to categorize each of the questions on advertisements and cartoons, using Bloom's taxonomy. The teachers were then asked to, individually, set LO, MO and HO questions on two advertisements that were related in theme, and two cartoons, likewise. This was followed by collaboration between teacher and teacher, and teacher and me. Drawing on over twenty years of classroom experience, including knowledge and skills in assessment for and of learning, questions were unpacked and modified for alignment with Bloom's taxonomy.

With regard to the EEs, I examined the responses of the teachers and state whether they are of an appropriate cognitive level, as requested in the ACE EE (Appendix A). The questions on both the advertisement and cartoon are analysed as follows:

(1) Choice of resources: (i) Are the two advertisements related to each other? Are the two cartoons related to each other? (Yes/No); (ii) Do the texts allow for testing both illustration and text, and engaging learners in the lower, middle and higher orders of thinking? (Yes/No); (iii) Are the advertisements and cartoons legible and well presented? (Yes/No).

(2) Questions set for learners: (i) Is each of the questions set an accurate interpretation of the cognitive level as required in the EE?

The data collected from the three case study participants comprises semi-structured interviews, lesson plans, and work sheets on VL. The interviews focused the key areas: (i) challenges experienced in teaching VL; (ii) the extent to which the PPT (discussed above) helped address these challenges; (iii) selection of texts for teaching; (iv) transfer of knowledge and skills acquired from the PPT into the classroom; and (v) a general closing comment on the ACE programme. In analysing the lesson plans and worksheets, I look at choice of texts, and learner tasks/questions. Where appropriate,

the presentation of findings and discussion of these data are integrated with those of the data obtained from the 40 class participants.

Findings and discussion

The teaching process

As is common practice, the teachers were given course materials for their study. For VL, this comprised background information on VL (contextualized understandings of the illustrations and linguistic structures) with a focus on technical knowledge (e.g. headlines, fonts, slogans, colour), critical language awareness (e.g. use of emotive language and literary devices such as irony, satire and stereotypes as persuasive advertising techniques; and making interpretations in multi-layered ways); and assessment *for* and *of* learning.

The observation notes compiled from the activities of Step 1 outlined above show that the most common questions on the advertisement were: (i) 'What is advertised?' (The name of the product); (ii) What is the 'advert' about?; (iii) What is the intention of the 'advert'?; (iv) Underline the verbs/ adjectives (or other parts of speech) in the 'advert'; (v) What is the name of the punctuation mark in…? and (vi) Do you like the 'advert'? The first two are LO, platform questions which ensure that learners know *what* is being advertised and what the advertisement is about. However, this is not *always* a straightforward question, as some advertisements do not sell a product but entice the reader to act in ways other than buying a product. Question (iii), is a MOQ which engages the learner to think beyond the 'what?' of the advertisement even though it is not entirely accurate as the doer is not the advertisement but the advertiser. Questions (iv) and (v) do not address aspects of understanding VL as their focus is on purely linguistic aspects. However, questions on the effect of linguistic aspects on understanding advertisements could engage learners in HO thinking. Question (vi), if explored, for e.g. with a follow-up 'Why?' would have been a true learning question. The close-ended 'Yes'/'No' without justification does nothing for enhancing learning in the classroom. *Every* teacher used the colloquial 'advert' in his/her questions. Questions on technical knowledge and critical language awareness were not asked.

The cartoons most selected were those that addressed the cultural, social and political events or issues in South Africa, for example, *Madam and Eve*, and *Zapiro*. The large majority of the questions on the cartoons were: (i) What is the cartoon about?/What is happening in the cartoon?; (ii) What is (the character) saying?; (iii) How does (the character) look?; (iv) Underline the verbs/adjectives (or other parts of speech) in the 'cartoon'; (v) What is the name of the punctuation mark in…? and (vi) How does (the cartoon) make you feel? The first question ascertains learners' understanding of the main idea of the cartoon and questions (ii) and (iii) invite paraphrase and descriptive responses, respectively. All three are LOQs, necessary for basic understanding, but fail to ignite learners' thinking and understanding of the texts. Questions (iv) and (v) have a linguistic orientation, which, like the questions for the advertisements, could have been framed differently to engage learners in HO cog-

nition. The final question, as well, is a close-ended question, which, if extended to 'Why?'/'Explain your answer', could promote MO thinking. Also, like the advertisement, there were no HOQs on technical knowledge and critical language awareness.

The implicit difficulties that teachers display in asking questions that provoke thinking amongst learners is explicitly indicated in comments made by the three interviewees. The most significant common challenges identified prior to the PPT, was teacher lack of content knowledge; inadequate methodological knowledge and skills; and inability to interpret Bloom's taxonomy for practice. The participants indicated a dependency on previous year exam papers and textbooks: the questions on VL were given to learners as exercises to be completed and then marked – all three teachers stated that before the PPT, they did not *explicitly* teach VL. Mr R said: "I didn't know that you could actually teach adverts and cartoons…I never taught it. I used to just give them past year papers and then mark their answers. I didn't know that you must look for certain things – like humour, pun, satire, illustration, language …but now, I choose my own texts. I think about what questions I can ask." In a similar comment, Mrs N stated that she would do remediation after correction of answers but did not "really check or know whether [her] learners understood the concepts". The lack of appropriate questioning techniques thwarts real feedback on assessment *for* learning. The replacement of teaching with past year paper exercise completion severely impacts on teachers' own ability to think in complex ways and on methodologies that could encourage higher order thinking amongst learners. This practice fosters a culture of laziness amongst teachers who fail to recognize the values of purposeful text selection; stifles teachers' own thinking about text interpretation, the kinds of questions that different texts generate, and even the range of possible answers (as the memo for past year question papers are available on the DoE website); and encourages teaching from question papers rather than addressing the curriculum. The synonymous treatment of teaching and exercise completion has multiple debilitating effects: it contributes to teacher-dominant lessons, preventing active learning amongst learners; thwarts opportunities for enriching peer interactions; fails to elicit responses from the shy and ill-confident learner; and deprives learners from thinking in ways that enhance cognitive development. However, the interviewees report – and their lesson plans verify – that, following the intervention programme, they engage their learners in effective pair and group work; involve 'the shy and weaker' learner; select texts that can generate questions that address specific concepts in VL; and ask questions that transcend low cognition.

Text selection
In assessing teachers' choice of texts, the data for the class participants is presented with regard to: (i) the relatedness of texts to each other; (ii) testability; and (iii) presentation of texts.
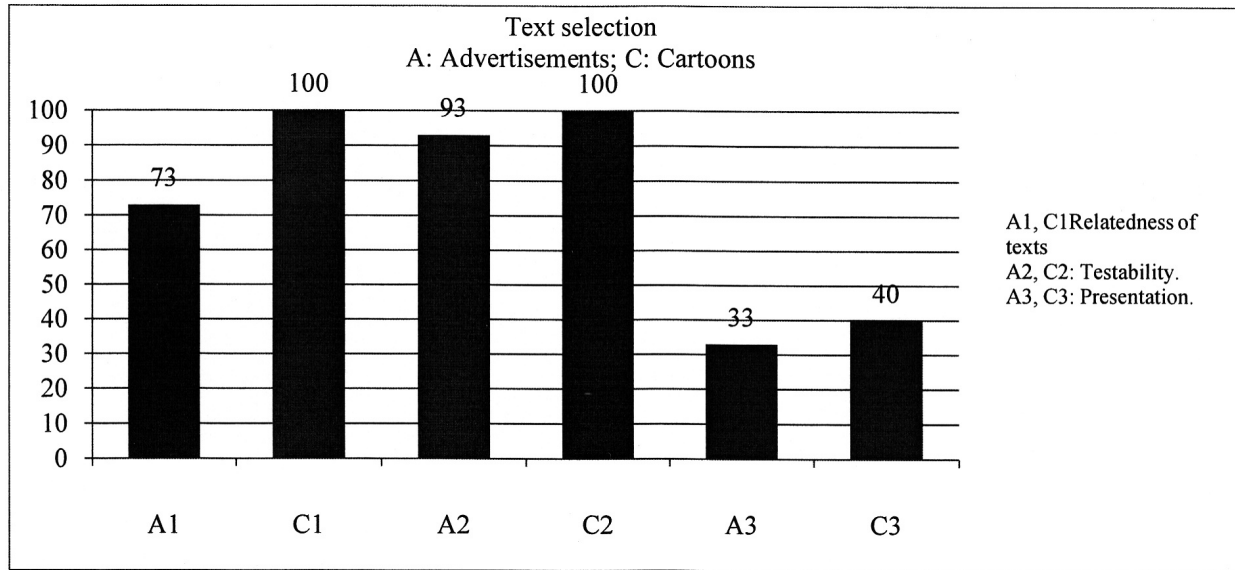
Figure 1 Text selection

The data, Figure 1, show that the large majority of teachers display high competencies in selecting visual texts for relatedness in theme and for testability, but not for presentation with regard to neatness, order and legibility. Some common themes included cars, health, food, parenting and beauty products. Appropriate choice of themes is important in that they should be within the realm of learners' cultural and social capital and form the platform upon which other higher order cognitions are scaffolded. The choice of texts is also crucial in that they should provide opportunities for assessment *for* learning. The evidence shows that, with structured content knowledge input, unpacking of informing theories and their practical application, and teacher-teacher and teacher-facilitator collaboration, the large majority of teachers were able to select texts appropriate for assessment. Texts chosen could yield the kinds of questions that promote meaningful responses to "pictorial" (Mitchell 1994, in Callow, 2005:8) and "linguistic" structures (Barnard, 2001:2). In addition, engaging in two texts provides opportunities for reading the written text and illustrations comparatively and critically. However, the data reveal that teachers display greater competence at selecting texts for cartoon reasoning than for advertisements, the reasons for which have not been explored. The overall poor presentation of the texts could be attributed to the fact that this criterion was not (albeit unintended) consciously raised and discussed in the teaching process, yet required in their EE. This result, as well as evidence obtained from the of the case study participants, further reinforces the argument that teachers can be systematically conscientized as agents of change in their classroom practice. The interviews show that following the intervention, the participants felt 'more confident' about selecting texts and did so purposefully. Mrs N displayed sensitivity to her learners' personal experiences and avoided topics that dealt with teenage pregnancy, rape, domestic violence and abuse, and "like[d] choosing texts that have a moral lesson [and that] contribute to [her learners'] spiritual development." Mr R looked for texts that could "generate the right type of questions"…"texts that have similar themes" so [he] could "ask questions based on comparison". He also stated that he has started his "own collection of advertisements and cartoons" and is "no longer dependent on past year papers and textbooks". Miss A includes film posters and book covers in her teaching of VL. Generally, all three participants favoured 'neutral' (see Moodley, 2012; Stein & Newfield, 2006) and 'current' topics, and draw their materials from newspapers and magazines, instead of past year papers and textbooks. The lesson plans show that their general choice of cartoons were *Garfield*, *Peanuts*, *Zakumi*, and *Madam and Eve*. Purposeful selection of texts for study by learners is a significant breakthrough for teachers, as this requires in-depth sophisticated pedagogical content knowledge (see Shulman, 1986) that helps learners in their cognitive development.

Cognitive questions using Bloom's taxonomy
The results, Figure 2, show that almost all teachers could pose LOQs for both the advertisements and cartoons. This was an expected result, as observation notes made
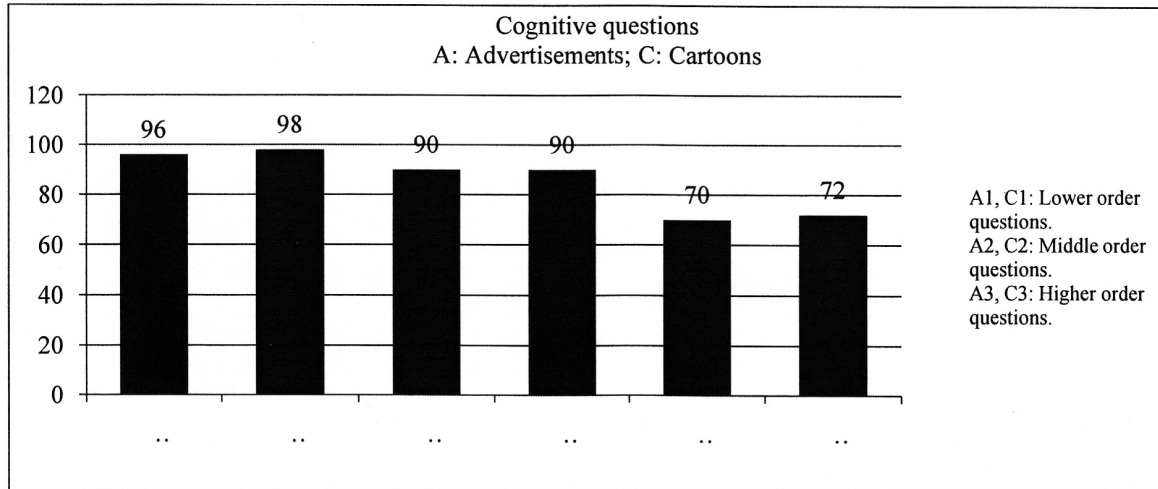
Figure 2   Cognitive questions

during Step 1 of the teaching process showed that almost all of the questions asked were of LO cognition. However, significant differences are evident with regard to both MO and HO cognition. Whereas, before intervention, teachers barely asked MO and HO questions, after the intervention, the overwhelming majority (90%) could ask MOQs and the large majority (an average of 71%) could ask HOQs for both the advertisements and cartoons. Some of the MOQs are:

The advertisements:
(i)   Give one reason why the advertiser uses both small and big fonts in the advertisement.
(ii) What appeal is the advertiser making to you [sic]? How [sic]?
(iii) Working in pairs, discuss the similarities and differences between the two advertisements.

The cartoons:
(i)   Looking at frame B, what tells you that the environment to study or do homework is unhealthy [sic]?
(ii) How can you tell that the minibus on strip 1 [sic] is travelling at a high speed?
(iii) What does the illustration tell you about the political character? If you did not know this political character, would you understand the cartoon? Explain your answer.

Some of the HO questions are:

The advertisement:
(i)   Would you buy this product? Motivate your response.
(ii) Do you think the slogan is an appropriate one? Justify your response.
(iii) Does the illustration persuade you to act? Why?

The cartoon:
(i)   Refer to Text B. Refer to frame 3. What is ironic about the boy's comment?
(ii) Refer to Frame 2 in text A, do the expressions of the children tell you about their attitude.
(iii) What does the thought bubble reveal about (the character's) attitude toward the fashion?
(iv) Do YOU [sic] find the cartoon funny? Motivate your answer.

The startling difference in teachers' ability to make a transition from asking LOQs to HOQs may be directly attributed to the carefully structured PDP which, in itself, was scaffolded for providing content knowledge as well as constructing bridges from theory to practice. Teachers demonstrated having acquired an understanding of VL specific jargon and concepts such as fonts, appeal, frame, strips, slogan, persuade to act, illustration, thought bubble and irony – all of which were not evident in Step 1 of

the teaching process. In this way, the teachers show evidence of having deepened their pedagogical content knowledge. In addition, colloquialisms were no longer used in their questions.

With regard to the three case study participants, the interviews, together with the lesson plans, also demonstrate that following the intervention programme, participants were able to ask questions across the cognitive levels; ask questions on illustration, tone, diction, and language; ask learners for justification of their close ended responses; and make reference to specific relevant jargon (identified in foregoing parts of this paper). Indeed, the lesson plans show that for cartoons, most of the questions were either middle or higher order. Each of the three interviewees stated that they now 'actually teach' VL; use recommended methodologies from the ACE programme; compile their own questions, and explore a range of alternative answers. The worksheets show that some of the questions asked are:

Advertisements:
Mr R: (Pair work). (i) What product is being advertised in Text A and Text B?; (ii) Which of the 2 adverts would influence you to buy the product? Motivate your answer by discussing both the adverts.
Mrs N: (Pair work). (iii) Does the advertisement attract your attention? Why?; (iv) Underline all the emotively used words and explain how they influence the reader to act.
Miss A: (Group work). (v) Who [sic] would this movie appeal to?; (vi) What do you think the movie is about? Motivate your answer by discussing both the illustration and written text.

Cartoons:
Mr R: (i) What is the point of humour in the cartoon?; (ii) Discuss the techniques the cartoonist uses to create the humour. Look at both the illustration and language.
Mrs N: (iii) Look at Frame1. What does Fred's expression tell you about how he feels about having a bath?; (iv) How do the words in Frame 1 reinforce his feelings?
Miss A: (v) What do the men's attire tell you about their social position?; (vi) What does the language tell you about their social position?; (vii) What is being stereotyped in the cartoon?

While the transfer of knowledge and skills acquired from the ACE programme could not be ascertained from data collected by the class of 40 participants, the sample of questions obtained from the case study participants is a clear indication that these three teachers transferred knowledge and skills acquired from the PDP into their classrooms. They were able to ask the kinds of questions that engage learners in the meaning making process and foster cognitive development amongst their learners. However, further training is required on wording of the questions: teachers must recognize that asking middle and higher order questions is crucial, but that making

such questions clear and unequivocal is equally important. Potentially useful questions that are poorly constructed could thwart meaningful responses. Nevertheless, it is clear that teachers' relevant content knowledge has enabled using questions that engage learners in meaning making processes. In addition, a close study of Mr R's lesson plan and worksheet shows that he extended his questioning skills by providing his learners with texts and key concepts such as 'humour', 'irony', 'language', and asked learners, working in pairs, to frame questions around these concepts. This activity augers well for cognitive development as it foregrounds learners' prior knowledge; assumes understanding of text interpretation, and requires in-depth concept and linguistic knowledge.

The MO and HO questions identified by both the class and case study participants indicate that teachers have experienced new ways of thinking about what they read, creating pathways in their own reading brain (see Wolf, 2007). In asking 'worthy' questions (Black et al., 2004), teachers also provide opportunities for learners to engage in ways that transcend close-ended, literal questions; learners are invited to engage personally, meaningfully and critically with the texts. In this way, learners do not see their reading texts as an alien mass of words and illustrations, rather as materials they can relate to and vehicles of stimulating their intellect. In developing their own skills, teachers are better able to create cognitive pathways for learning in their learners; they are able to assess for learning, and better prepare learners when their learning is being assessed.

Knowledge transfer
In addition to transferring pedagogical content knowledge and skills acquired from the ACE programme into the classroom, evidence from the case study participants reveal that new knowledge gained can have a cascading effect: colleagues at the participants' schools and cluster cocoons, as well as their visiting pre-service teachers, are reported to have benefitted. According to Mrs N, not all colleagues, however, respond favourably from shared knowledge and experiences; some find "new ways of teaching challenging and difficult, and just more work for teachers". It is unclear whether the knowledge shared was passively transmitted or done in "true collaboration", which, Burbank and Kauchak (2003) state is necessary for negating negative attitudes towards change. Visiting pre-service teachers who have observed the participants teach VL, and who have engaged in meaningful interactions with them, are also reported to have "benefitted immensely" in both content knowledge and methodologies, and have received favourable evaluations from their respective university advisors.

Conclusion
This study has focused on two critical issues pertaining to the educational crisis in South Africa, *viz*. (i) the need for a carefully structured professional development programme for teachers that address gaps in pedagogical content knowledge, understanding of theoretical concepts and their application for classroom practice; and (ii) the need for learners to learn how to think i.e. to extend their intellect beyond literal,

lower order cognition. The results show that there are numerous benefits when specific aspects for professional development directly addresses the curriculum and teacher gaps in knowledge; when teachers are involved actively and collaboratively with each other and with the facilitator in unpacking reading texts; when the PDP facilitator is an expert professional in the field rather than an 'external agent'; and when the PDP facilitator scaffolds the input and systematically creates pathways for enhancing teachers' own cognition. The benefits are both psychological and educational, with reciprocal effect. Psychologically, it brings about positive attitudinal changes toward teacher development programmes; it enhances self-esteem; and boosts confidence to experiment with teaching methodologies and share knowledge with colleagues. Educationally, it improves content-specific teacher education which results in improvement in quality of learner education; teachers see assessment as a tool not only for testing outcomes but as critical means of promoting thinking in the classroom. In addition, the case studies, despite their limitations, demonstrate that the following teacher characteristics are crucial for initiating change in the classroom: positive and healthy attitudes towards a PDP; commitment to the programme and teaching itself; deep desire to learn; willingness to experiment with methodologies; and desire for learners to perform well. Finally, the study demonstrates that when teachers' own pathways for thinking are created, and if they have a sound understanding of cognitive taxonomies, they are better positioned to create pathways for higher order thinking among their learners. However, as Ono and Ferreira (2010:60) note, "although professional development lies at the heart of nearly every educational effort to improve teaching and learning it is not the panacea for all problems."

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Appendix A
A. Choose two advertisements for a Grade 10 English first additional language
    class and respond to the task below.
B. Choose two cartoons for a Grade 10 English first additional language class and
    respond to the task below.

Task:
1. Photocopy your texts so that they are clear and legible. Paste these in your
    answer book.
2. State the common theme for your texts.
3. Ask 3 questions, one on each of the following criteria:
    3.1 Lower order question.
    3.2 Middle order question
    3.3 Higher order question.
4. Provide answers for each of the above questions.