A Mutual Peer-To-Peer Assessment on Pre-Service Teaching Practicum

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ABSTRACT This paper reports about peers assessing peers during the science teaching practicum. The purpose of the study was therefore to establish the *foci* of pre-service teachers (PSTs) on what they assess and if there is a link between their assessment comments or judgments and the grading of their peers' teaching capabilities. This study was based on fifty three teaching journals PSTs used for assessment purposes during school practicum. Qualitative and quantitative analyses of the comments of PSTs about their peers' teaching capabilities and their mark allocations were respectively conducted from their teaching practice journals. The findings show that there is some consistency on the PSTs' *foci* of content they assess and the value they attach on most of the five variables. In addition, there is a varied link between their comments or judgements and the grading of their peers' teaching capabilities. However, assessment on *mastery of learning content* had the least comments. Most of the comments were on *teaching strategies, methods and techniques*. In light of the findings, we recommend that assessment criteria for peer assessment be clearly defined and sections be added to the teaching practice journals, to justify mark allocation for every aspect of the assessment.

INTRODUCTION

Teacher education is currently the most talked about subject in developing countries (Smith and Lev-Ari 2005). In South Africa, teacher preparation is one of the priority areas of improvement, to meet the skills required by the modern and continually changing socio-economic needs (Pretorius 2008). For example, in teacher preparation, it is imperative that teachers acquire a variety of skills to be able to meet the skills relevant in the twenty first century. Van Zundert et al. (2012) list higher order skills, problem solving, critical thinking and lifelong learning as some of the skills teachers need, to function in the 21st century. However, there is also the need to ensure quality in the processes of developing teacher skills.

Assessment is generally the mechanism by which the quality of processes or the outcomes of teaching and learning are ensured (Hargreaves 2005). Assessment is therefore an integral part of any teaching and learning endeavour. However, assessment is complex, as there are diverse methods, contexts and purposes for which it is carried out. In teacher preparation formative assessment is the approach mostly preferred by universities to assess teaching practicum. The practicum is the common and prominent approach of developing skills generally and teaching skills in particular. Peer assessment is commonly used among students during teaching practicum. It is a social collaboration where peers actively share responsibilities in a continuous dialogue of assessing the amount, value worth, quality and the success of the products or outcomes of learning (Dochy et al. 1999; Topping 1998). Peer assessment is therefore a *tool* where groups of individuals rate one another's abilities or performances of a task (Falchikov 1995). Tillema et al. (2011) single out peer assessment as a mode suitable for assessment in which students are actively involved in the learning of how to learn.

In light of the importance of quality in teacher preparation and generally in education, the focus of study is on assessment of PSTs recorded assessment practices as well as preferences in assessing their peers' teaching capabilities. Specifically, the purpose of the present study was to establish, based on the perceived absence or limited established assessment knowledge expertise, and experiential assessment skills among PSTs as assessors. That is, this study questions PSTs' abilities to score and justify the decisions and judgements they make. The researchers' argument is that the ability to assess should reflect knowledge of content of both the subject matter and pedagogy. In this study therefore, and through analysis of PSTs com-

ments and scoring of PSTs' assessment of their peers our attempt was to answer the following questions:

⬧ What is the link (if any) between assessment qualitative judgements and scores allocated by PSTs about teaching capabilities of their peers?

⬧ What are the *foci* of PSTs' comments on their peers' teaching capabilities?

The first question was aimed at establishing if there was any link between comments about PSTs' capabilities and the grading of the variables assessed. The second question was meant to establish the parts or areas within and among variables PSTs focused on in their assessment of their peers' teaching capabilities.

Literature Review

The amount or the level of learning is estimated through processes that involve in some instances, the administration of tests to students. These processes are called *measurement* (Hargreaves 2005). The administration and accuracy of measurements is a generally contested territory. This is despite the assessors being knowledgeable, skilled and using reliable instruments or religiously following 'correct' measurement procedures. In a complex teaching and learning process consisting of unpredictable human behaviour, these contestations are bound to be pervasive. Bush (2006) considers human behaviour to be irrational and in the process influencing the nature of decisions individuals make in education. These include assessment decisions teachers and their students make. Teachers make decisions when they assess their students, and students' decisions are largely made when they respond to the teacher's feedback. In this study students' decision are also made when they become assessors of their classmates. The irrationality that Bush (2006) refers to would be experienced among students engaging in peer assessment when they have to judge and decide about the process.

Deciding on the quality assessment process of carrying out a task during teaching practicum is influenced by contextual factors. Walvoord (2004) describes factors that contribute to the challenges that PSTs as assessors experience in assessment. The challenge is that, for PSTs to cope with field-based assessment factors such as time, knowledge, expertise and resources cur-

rent approaches of assessment need be changed in order to adapt traditional assessment. That is, peer assessors need sufficient and relevant *knowledge* and *expertise* of assessment to be effective assessors in field-based assessment. With limited knowledge or expertise it is unthinkable that PSTs would be able to assess for learning (Topping 1998). Assessment for learning is interpreted differently depending on the context in which it is used. In our case we adopted the Assessment Reform Group's (2002) as cited in Hargreaves (2005) perspective on assessment. According to this perspective, assessment is a tool of decision making about teaching activities, learning outcomes and accounting for learning evidence. Therefore during teaching practicum, assessment is meant to assist in the enhancement of the connection of the theory learned in classrooms with the practice students would be required to perform as they enter the teaching profession (Parkison and Bartek 2010).

In the real classroom setups (Yan and He 2010) PSTs come into contact with *real* students, teachers, and curriculum settings. The thought of PSTs' acting as assessors (during peer assessment) makes the field-based assessment even more daunting for them. As a result, the field-based teaching practicum would require a totally different and well informed assessment approach from the assessors. Field-based teaching practicum assessors would require a different system to collect information about learning. Questions that are mostly asked about PA are in relation to its *validity* or *reliability*. Such questions are justified considering the need for expertise and knowledge to objectively assess learning especially learning of teaching or the teaching practicum. Views about the use of PA are diverse, especially with regard to practicum teaching assessment. In their study, van Mook et al. (2009) found that many of the students they studied support its use because of its formative characteristics. This support of PA by students echoes Lynch et al.'s (2012) view of PA as an alternative supplementary assessment strategy. Their (Lynch et al. 2012: 181) contention is that "peer feedback and assessment helps support the building of student capacity to critically evaluate tasks and their own performance, which are essential skills for student teachers to develop."

Although PA has in some quarters received support as enhancing learning, it has some inherent limitations. In their study of 2nd-year med-

ical students, Dannefer et al. (2005) argue that peer assessment was valuable as it provided an element of formative assessment on interpersonal skills and professional competence related to work as well as interpersonal habits. Clearly, in teaching practicum, the focus on the areas Dannefer et al. (2005) indicate, may dilute PA's effectiveness in assessing some, and more relevant types of knowledge (for example, *subject matter knowledge, contexts of learning,* etc.) for a focused preparation of future teachers. The effect of assessment should not be limited or diluted, if knowledge is to be reliably estimated for purposes of establishing the quality and evidence of knowledge as well as skills learned or for formative purposes. Teaching skills or capabilities are important since these require that the teacher possesses requisite skills for improving the quality of learning in different contexts and in some cases contexts with many challenges, due to lack of resources.

Furthermore, assessment plays two important enhancing learning roles within the teaching and learning system, irrespective of where or what type of learning is being assessed (Price et al. 2011). It enhances the assessor's ability to understand the knowledge the assessed brings into the learning situation and subsequently their readiness to engage with new material during the learning process. The assessor's understanding of the assessed's readiness to engage with new learning material, enhances his/her reflective learning in teaching. This understanding is invaluable for future teachers. In this study, we did not expect PSTs' to have *intense* understanding of theories of assessment, knowledge of the methods used in assessment and/or in-depth subject matter knowledge. However, this does not mean that PSTs do not bring any knowledge into the learning situation, be it knowledge of assessment and/or subject matter. Parkison and Bartek (2010: 233) argue that PSTs' experiences with the curriculum in practical and authentic settings, allow them "to reflect upon and reconstruct their understanding of the theory that has been presented in a manner that transforms their professional practice". The researchers' goal of assessing PSTs is therefore premised on the notion that PSTs come into the teaching practicum, with the knowledge of having prior assessment experience as pupils in school, from their current educators and their school mentors. That is, PSTs could have come across as-

sessment in many different ways, at different times as well as different places of learning.

The goal is therefore, to assess PSTs' qualitative judgments about their peers' teaching activities during practicum. That is, the focus would be to construct some understanding of the choice of focus of their judgment comments and related decisions of scoring their peers' teaching capabilities.

Assessing Assessment for Learning

In this study the researchers assess PSTs' capabilities to assess their peers especially for the purposes of enhancing learning. Assessment *for learning* is one among many methods of assessment encountered in the family of formative assessment. Assessment for learning is considered a method that enhances the provision of feedback and is credited with improving students' ability to learn how to learn (Tillema et al. 2011). In teacher education one activity that has received prominence in engaging students in learning how to learn is peer assessment. Peer assessment has been used in different ways and for different purposes (Weaver and Esposto 2012) hence it is considered an important skill for teachers or their development. Through peer and self-assessment teachers can actively engage collegially (Adey 1998). In this study, the researchers assess PSTs' capabilities (that is, knowledge, skills and values). The analyses focus specifically on the PSTs' reported feedback records on teaching to reveal these capabilities.

In the analysis of reports on feedback as carried out by PSTs, the researchers aim to understand how they attempted (Tillema et al. 2011: 25) to "scaffold coherent authentic, personalised, direct and practical information" to other peers to enhance their learning of assessment activities. Although Tillema et al. (2011) indicate what the purpose of feedback is; this is not exactly what every assessor does in their feedback on learning. The context in which learning and assessment takes place influences what happens or is done in any particular assessment process. In the current study, assessment as reported by PSTs', could not only have been affected by the unfamiliar context in schools but also by the limitation of their assessment frames of reference (Sadler 1989). Although this is the case, Dochy et al. (1999: 337) concur with the use of such instruments even if they were "de-

signed by others before" and that prior discussion of the criteria should not necessarily have been discussed. In this study, only two *(that is, scoring the assessment, feedback and further promotion of learning)* of the building blocks of the assessment cycle were considered. The influence of the other five blocks are inherent in the instrument (teaching journal) used to collect information of PSTs' assessment activities. Hence, the structure (which incorporates the seven steps of the assessment cycle) of the instrument (teaching practice journal) used by PSTs will give us an idea about the teaching activities assessed.

Wimshurst and Manning (2013) point to the fact that PSTs' limitation in assessment is in their explicit and tacit knowledge. That is, besides PSTs being provided with criteria they still lack the tacit assessment and domain knowledge in assessing content knowledge. In addition, PSTs do not possess the experiential knowledge that academics have (O'Donovan et al. 2008). Therefore, PSTs' assessment may be limited by their lack of relevant knowledge, expertise and experience to produce complete or reliable outcomes of assessment. In this assessment of peer assessors' comments, we are informed by a particular understanding of peer assessment. The researchers used Topping's (1998: 250) understanding to accurately focus our goal in assessing the qualitative judgments of PSTs' comments. That is, some of the focus areas in assessing these comments illuminate "the amount, value, worth, quality or success of the products or outcomes of peers of similar status". Since practicum serves as a bridge between theory and practice, it is as well the context in which student teachers develop a personal teaching competence (Smith and Lev-Ari 2005), therefore a diversity of assessment comments should be expected, as these PSTs come from different learning and socio-cultural environments as both the assessor and the assessed.

METHOD

Context

This study was conducted at a University of Technology (UoT) in South Africa among a cohort of second year Bachelor of Education students specialising in science education. The degree is a four–year programme preparing stu-

dents to teach Physical Science in the South African public schools curriculum. The study was about assessment of practicum for second-year students. The practicum takes place at schools over a five-week period. Each student is allocated a mentor over the five week period of the practicum. The mentor serves the role of developing and assessing the student's teaching skills. In the five weeks that the student is on teaching practicum, he/she is subjected to three assessments. The other two assessments are conducted by the university educator and a peer. The peer assessment involves a dyad of peers. At the end of the five-week practicum the pre-service teacher submits the *teaching practice journal* to the educator responsible for the theory of teaching of the subject (that is, Physical Science in the case of this study). The subject educator summarises all the assessments as evidence of assessment of and for learning of the subject practicum during the academic year. In this study the focus is on assessment of students' mutual assessment of their teaching knowledge and skills.

Research Design

This study was both qualitative and quantitative in design. The qualitative part was meant to elicit information from students about their counter parts assessment knowledge and skills. This information was drawn from their qualitative judgments of their teaching lesson. The quantitative part was an evaluation of students' scoring of the teaching capability of their peers. Scoring was done by allocating a mark and commenting (qualitative judgments) about teaching activities (Sadler 1989) of the PST. The scoring is evaluated as reflecting or quantifying the value of teaching capability. The qualitative judgments and the scoring focused on six specific variables (see Fig. 1) of the teaching practice journal, that is, *mastery of learning content* (MLC), *didactic flexibility* (DF), *communication and learner involvement* (CMI), *actualisation of content* (AC), *strategies, methods and techniques* (SMT) and *teaching media usage* (TMU). As Dochy et al.(1999) indicated, qualitative judgments are inherently remedial or formative. Sadler (1989: 120) regards these comments or feedback as "a key element in formative assessment" thus requires the assessor to have the necessary skills and experience to engage in such a process. Hence, assessors need to have the ex-

pertise to give feedback to help close the gap between "the actual level and the reference level" of what is supposed to be learned (Ramaprasad 1983: 4). This study is generally about evaluating the peers' ability to assess for remedial or formative purposes.

Data Collection and Analysis Processes

The sample from which data was collected consisted of fifty-three (53) *teaching practice journals*. In Figure 1 the process to collect and analyse data is illustrated. Data (qualitative-*qualitative judgments* and quantitative-*scores as reflecting value of teaching capabilities*) was collected from each of the five variables described earlier (Fig. 1).

Data collected described the five variables qualitatively and quantitatively and reflected the results of the judgments (Fig. 1; R and C) of teaching capabilities of PSTs as adjudged by their counterparts. The analyses of the data were the outcome of the interpretation of what PSTs thought about the capabilities of science teaching of their peers.

RESULTS

The results are reported in two sections according to the methods used. First, the researchers report the quantitative analysis part and second, they complete the report with qualitative judgements reported as comments. Before the analysis the criteria under which the comments are assessed are described. Analysis of the qualitative judgments is at two levels, namely, the manifest and latent content analyses (Graneheim and Lundman 2004). The manifest content analysis describes the *visible* and *obvious* components of the comment. The scoring of PSTs' teaching capability is mostly manifest in nature as scores give an impression of 'poor or good' teaching. This is done to ensure accuracy and enhance objectivity in analysis.

The six variables were assessed and scored in terms of achievement allocated (Table 1). Although peer assessment is mainly about qualitative judgment, a quantitative element was here introduced to link value of assessment to PSTs' qualitative judgments. The analyses of scores as allocated (on average) show an agreement
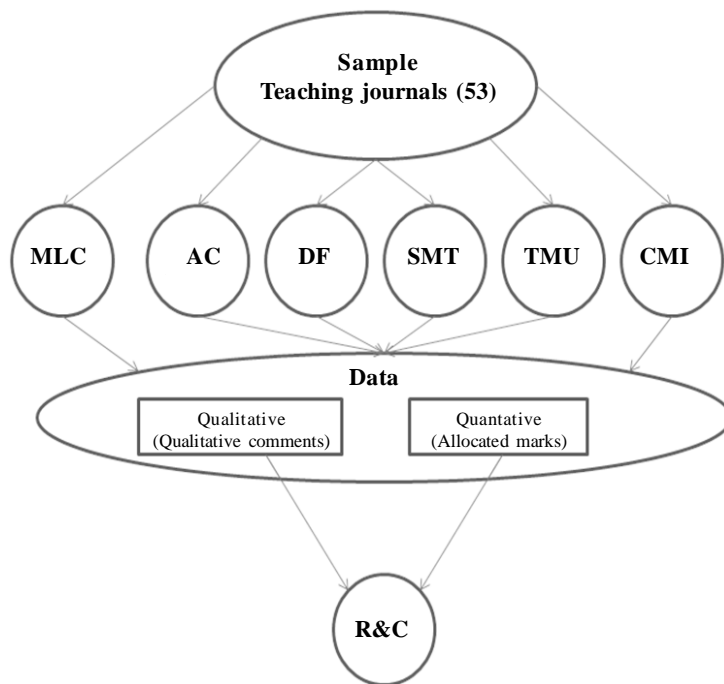

Fig. 1. Processes of data collection and analysis

Table 1: Underlying structures, habits and affective connections of PSTs' assessment preferences of six variables in the teaching practice journal

	Mastery of learning content (9)	Actualization of content (5)	Didactic flexibility (6)	Strategies, methods and techniques (5)	Communication and learner involvement (7)	Teaching media usage (6)
Average Mark Allocated	6.82	3.98	4.80	3.96	5.14	4.68
Standard Deviation	1.24	0.96	1.05	0.73	1.39	1.06
Average% Allocation	76	80	80	79	73	78

among PSTs' scores of the six variables assessed. The range of scores allocated is from 70% to 80%. Of significance in these scores is the generous amounts allocated. It is also important to report about how individual variables were assessed, as this paints a better picture of the meaning peers attach to each. In addition, this illuminates on how a particular variable was assessed.

Mastery of Learning Content

On average, a peer would allocate his/her counterpart 6.82 out of 9 (76%) on *mastery of learning content*. Although peers awarded an average mark of 76%, there was only one PST who commented about a peer's mastery of learning content. The fact that only one PST commented on this variable, may be attributable to a variety of factors, including their knowledge of content or the criteria used. For example, this may suggest that PSTs did not understand the criteria or did not even refer to it.

Actualization of Content

Under this variable an average score of 80% is awarded (see Table 1). Although this variable has been highly 'valued', PSTs could not justify it with relevant qualitative judgments. For example, no mention of which content knowledge the peers possessed or actualised. Further discussion on this aspect is dealt with under qualitative analysis.

Didactic Flexibility

An average score of 80% was allocated on this variable. Only two of the PSTs from the fifty

three who participated in the study, gave a qualitative judgment on this variable. This is despite the fact that criteria for the assessment was provided for the variables in the instrument. Does this suggest that scores are somehow ill informed?

Strategies, Methods and Techniques

Majority of PSTs gave qualitative judgments that supported their allocated scores on this variable. On average each peer scored 79% on this variable. Why was there so much interest on this variable? Was it interest or knowledge, expertise or experience of strategies, methods and techniques in teaching? This question is answered in the qualitative analysis of the study.

Communication and Learner Involvement

Generally PSTs have been generous with their allocation of scores to their peers. In this variable it was no different. The average allocation (73%) is normally associated with the ability to communicate or to interact with students. Could it be that PSTs are skilled assessors or lack assessment skills? Their qualitative judgments may be the key to answering this question.

Teaching Media Usage

Although a generous average score (79%) has been allocated in this variable, it is not clear how it was arrived at. The PSTs tend to allocate scores without basis. That is, they did not justify their scores with qualitative judgments.

This section of analysis attempts to link PSTs quality judgments with the criteria that were

provided in the teaching journal. To some extent the analysis links the scores allocated to the comments in terms of meaning. That is, are the comments in alignment with the scores allocated?

Mastery of Learning Content

Criteria

The assessed peer should be able to *define*, *describe* and *explain* concepts in an unambiguous manner for the taught students to grasp the meanings and usage of such concepts. The assessed peer should be able to present learning content logically, to enhance integration and use of related concepts by students (learners). That is, to enhance coherent and meaningful knowledge construction.

PST 41: You are confident and seem knowledgeable about the subject content. He has the knowledge of the content.

Although this assessor (PST) indicates that the fellow peer seemed knowledgeable about learning content, s/he is not explicit as to which specific aspects of the content and what this peer is knowledgeable about. On the basis of what the peer is teaching, the assessor must be explicit about his/her judgments, to enable the assessed to understand what specifically she needs to do or focus on, for future learning and teaching. This excerpt does not assist the fellow peer's learning or reflection, because there is no clear indication of what sort of content he/she possesses or does not possess. The assessment for learning is meant to assist fellow peers in improving their practice or preparation for further assessment by the university assessor and educator.

The peer in charge of teaching the class does not benefit much from the comments made by the PST in terms of *mastery of learning content*. Since PST 41 is the only peer who commented about subject content knowledge, it therefore means the other 52 peers did not receive any feedback about their mastery of learning content or lack of.

Actualization of Content

Criteria

The assessed peer must be in a position to establish if his/her students (learners) have ac-

quired new knowledge and skills during teaching. This may be established through *questioning* or allowing students to solve related questions. In addition, students may engage among themselves in groups to discuss content under consideration.

Of course, we could not expect the PSTs to provide comments relating to *actualization of content,* when they could not indicate which learning content was mastered by the peers; as was the case with *mastery of learning content.* That is, there was only one PST who commented about the knowledge of content by the PST. One possibility could be that the peers do not understand what exactly actualisation of content meant.

Didactic Flexibility

Criteria

The teacher must adapt or accommodate different situational circumstances during teaching. That is, the teacher must react appropriately to students' different behaviours that are in some instances challenging to the teacher's knowledge of learning material. These include questions, time constraints and lack of clarity on the teaching of some aspects of the topic.

PST 7: He shows the knowledge and understanding of the learning area.

From the PST's judgment it is not clear or explicit what he/she means by learning area. Does this mean the peer is able to use other disciplines to explain a concept or concepts? One would expect the PST to indicate some concepts in a particular subject or topic, with examples of his/her claims about the fellow peer's knowledge and understanding. The number of comments provided by PSTs does not seem to correlate with their scoring for *didactic flexibility*. When an average percentage mark of 80% is awarded to an item as in this case, one would expect each PST to justify the score allocated. However, only two PSTs provided comments as indicated by excerpts below. There is also misalignment between the comments and what the variable means. The same question arises, as to whether these assessors understand what they are supposed to be assessing.

PST 4: Well prepared lesson.
PST 9: Lesson was well presented.

These excerpts are also not detailed, since it is not easy to understand what it means to have

"well-prepared lesson". Well is relative, if criteria are not used as reference. Similarly, and for feedback purposes, PST 9 should have explained what it means by "lesson was well presented," so that the fellow peer is aware of aspects to focus on when preparing or improving for further assessment on his/her teaching.

Strategies, Methods and Techniques

Criteria

In teaching, it is important to be able to apply different strategies, methods and techniques. The assessor must look at their *suitability* to the topic under discussion or how the teacher makes them effective in the situation or *context* at that time. Are the methods *aligned with the lesson* plan for the teaching of the topic? These are areas to focus on in assessing teaching strategies, methods and techniques applied.

PST 2: The lesson was introduced in a good format.

PST 23: Your introduction is very good.

PST 13 feels that the introduction of the lesson could be further developed *by* linking *the present class to prior knowledge (see excerpt below).*

PST 22 agrees that prior knowledge is necessary *when introducing a lesson which relates to a lesson taught in the past.*

PST 13: The introduction was good *but didn't link to prior knowledge.*

PST 22: She can link the prior with the new knowledge in her introduction and she can integrate the new knowledge with other subject.

PST 7: The educator introduced the lesson *in the manner in which the learners* will get an overview of the topic. *He also explains to the learner what to do by doing an example but not* involving them to participate.

The comments above all focus on the introduction of a lesson. Their assessment is generally about whether the introduction is *good* or *bad*. What is missing in the PSTs' assessment is the discussion about the methods or strategies used. The comments are general with no coherence of what should have been done and how. That is, they lack the remedial aspect of assessment. For example, with reference to PST 2 and PST 23, an observed lesson was introduced in a 'good format'. Again, it is difficult to know what "in a good format" means. PST 2 could have

elaborated or given advice on this aspect. It is also important to indicate features that make a good or a bad format to assist the assessed to improve her/his teaching activity. In the comments by PST 13 advice is given but will apparently be confusing to the peer, as it is both good and bad. In excerpt PST 7, it is not clear what the PST means by getting "an overview of the topic". An indication of what was supposed to be learned would have added value in respect of prior knowledge that was required.

PST 19: Improve *your* teaching methods. *Give more relevant examples.*

PST 26: The lesson has been presented fairly *and logically*.

In the two excerpts (PST 19 and PST 26) the comments are about application of teaching methods. The PSTs' emphasis is improving of methods. What is not clear is which methods they are referring to. That is, the assessor needs to indicate which method the fellow peer was using and how it should be used to improve its usage. The teaching methods of peers such as cited by PST 19 needed improvements as indicated in the excerpts. The PST assumes that such improvement should include giving of examples. It is clear here that the PST 19 cannot distinguish between the method and its application. For example, one cannot change what direct lecture method is or entails. It is either one applies the principles correctly or incorrectly. Therefore PST19 needs to indicate which method and which principles within the method are not applied accordingly. Giving examples does not constitute elements or principles of the method, since the same examples may be given in two different methods. Do these PSTs understand the meanings or differences between the three concepts (strategy, method and technique)? It is also not clear what fair presentation entails. Do the assessed understand what entails logical presentation? The assessor needs to be explicit about the terms s/he uses. The assessors do not use the criteria provided as there is no reference to them.

Communication and Learner Involvement

Criteria

For effective teaching, communication and interaction with students (learners) is a must. That is, the teacher must involve or encourage

student participation by engaging them in learning activities. The teacher needs to explain concepts through direct communication and demonstration. In addition the teacher needs to reach individuals from different teaching and learning backgrounds. The use of appropriate gestures and variations in the tone of the voice must be demonstrated in a classroom situation.

PST 10: She has a good communication *skill.*

PST 13: His tone of voice *must be improved.*

PST 1: Good class control *and* clear questioning.

PST 12: ...learners participated well, they enjoyed the lesson. *...learners were involved in a* discussion method *as this was one of the strategies that he used.*

PST 15: You are audible but improve your interaction with learners *by moving around during lesson presentation.*

PST 23: You allowed learners involvement *in the discussion.*

PST 28: He must put things logically*, involvement of learners.*

PST 24: ... lesson presentation is good*, but try to ask more questions and allow learners to solve problems on the chalkboard.*

PST 40: Very good class control*, clear questioning and a very neat instruction.*

PST 42: ...works very well with learners. She likes her work *and is patient with learners.*

The communication variable received most of the comments by PSTs. The PSTs' comments on communication were of two types, that is, verbal and physical interaction. In cases where the PSTs did not communicate well, this was indicated. The excerpts above indicate how communication was handled by peers in class. Generally, the comments are about what their fellow peers did. In some of the comments, specific areas of exactly what they should do or should not do are not indicated for improvement (e.g. PST13; PST15). In some comments the PSTs are praising their peers, without indicating which areas deserve the praise and how they deserve such praises. Besides personal communication skills, the PSTs managed to report about the management of the class (PST24, PST40 and PST42), how the peers interacted with the learners as indicated by the excerpts. Generally in this assessment variable PSTs made reference to elements of the criteria.

Teaching Media Usage

Criteria

In teaching, different situations call for different materials to be used in attempting to get the teaching content message across. That is, their use is dependent on the topic being taught. The teacher should be able to establish *suitability*, *relevancy*, and *adequacy* of selected media. In assessing the teacher therefore, focus should also be on how the chosen materials are designed in respect to the desired outcomes and how they are used.

PST 11: The teacher must learn to use more teaching media and writing on the board.

This is the only comment (from fifty-three PSTs) about teaching media. The fact that it is the only comment may indicate that either the peers were not using other teaching media in addition to the traditional 'blackboard' or the PSTs do not understand the use or importance of media.

The discussion that follows will be an integration of both the quantitative and qualitative analyses of the PSTs scoring as well as their qualitative judgments.

DISCUSSION

The discussion of findings is divided according to the research questions. That is, there will be a part in which findings for each question are discussed. In addition, the discussions of contents for all variables are integrated. First, we discuss the findings relating to the question on the *the link* between assessment of qualitative judgments and the scores allocated, then later the discussion is on the foci of PSTs' qualitative judgments on their peers' teaching capabilities.

- *What is the link (if any) between assessment qualitative judgments and the scores allocated by PSTs about teaching capabilities?*

Sadler (2005: 177) defines assessment as "the process of forming judgment about the quality and extent of student achievement or performance". The researchers' analysis of PSTs' capabilities of peers' teaching is a direct reflection on Sadler's conception of assessment. That is, we link scores awarded (that is, extent of achievement) and quality (that is, qualitative judgments). The analysis reveals a consistent allocation of

scores of the extent of achievement across the variables under investigation. This is in agreement with Weaver and Esposto's (2012) notion that this may be signalling that the scores are *reliably* predicting weaknesses or flaws in PSTs' assessment. It should also be acknowledged, that this 'reliability' does not necessarily demonstrate *validity*. In addition, the scores these PSTs awarded to their peers are generously high. The result of the data analysis for this research question points to the existence of a link between qualitative judgments and scores awarded by PSTs as far as the overall assessment of "exposition and actualisation of new learning content" is concerned.

However, analysis of individual variables within 'exposition and actualisation of new learning content' cluster, paints a different and varied picture. For example, in the analysis of *strategies, methods and techniques* variable there is a link between the scores awarded and related qualitative judgements. In other variables (that is, actualization of content and mastery of learning content), no links could be established because no judgment was passed on their (PSTs) scoring of these variables. Various factors could be attributed to the origins of these differences in PSTs' assessment practices or preferences. For example, Bailey et al. (1999) and Sedumedi and Mundalamo (2012) attribute the link between scores awarded and related qualitative judgements in the *strategies, methods and techniques* variable to an emphasis by teacher educators especially when assessing the practicum on method application over their subject matter knowledge. In effect, their practices influence their students' preferences and practices. The source of PSTs' failure to comment or the lack of correlation between the scores awarded and their qualitative judgments is due to lack of expertise or experiential knowledge (Sadler 1989; Wimshurst and Manning 2013). All these variations occurred despite the fact that criteria for assessment were made available to PSTs in the teaching journal. This confirms O'Donovan et al.'s (2008) notion that experiential knowledge or explicit and tacit knowledge take precedence over available information (for example, criteria) in assessment. That is, it is of no use to have assessment information without the knowledge or skills to interpret how to use it in different contexts.

♦ *What are the foci of PSTs' comments on their peers' teaching capabilities?*

In the researchers' original idea about the study the intention was not to link the two questions. However, the outcomes of the data analyses revealed some link between the two questions. In the finding, in our first question a link was established between the scores PSTs awarded to peers and their qualitative judgments. Incidentally, in this question most of the PSTs' qualitative judgments were about *communication and learner involvement.* Communication and learner involvement is about classroom interaction between the teacher and his or her students. This is when the interactions are about applying teaching methods. What this implies is that PSTs' assessment was clearly more about the classroom interaction at the expense of *mastery of learning content and actualization of content.* These two variables were the least variables in which qualitative judgments were made.

In light of this finding, the immediate question that arises is, what are students and their teachers interacting or communicating about? It is clear that the PSTs' assessment is in support of the finding in the first question. That is, their focus was mostly on two variables. What makes these two variables the interest of assessment by PSTs? The answer is that teacher educators tend to emphasise them when they assess PSTs during practicum assessment. In addition, in their qualitative judgments PSTs do not have to use criteria as their comments suggest. The comments are general about what should happen between the teacher and his or her students. For example: *PST 23: You allowed learners involvement in the discussion* (Communication and learner involvement). This comment does not in any way add value to assessment for learning. PST 2: *The lesson was introduced in a good format.* The PST does not indicate which method or does not explain to the peer being assessed what method was used and what was good about the format or whether there was alignment between methods used and the lesson plan. The researchers' view is that we need to interact about what is taught and not only about how or who is involved in the teaching.

CONCLUSION

Although it would not be easy to establish processes of ensuring accurate measurement of

learning outcomes generally and in teacher education in particular, knowing, through the estimation of the levels of knowledge and skills our PSTs acquire in their preparation, we are somehow guaranteed at the least, a starting point of further and continuous teacher development. From the two research questions we have come to the following conclusions:

There is no conclusive outcome of the link between the scores awarded and their qualitative judgments. The variations in the relationship between scores and qualitative judgments may be attributable to the different knowledge of assessors and socio-cultural contexts in which assessment was conducted and backgrounds assessors (PSTs) and their peers come from. With regards to what the assessors focused on in their assessment, it is apparent that assessors were more focused on the general discourse of the classroom and less on the subject matter knowledge (science knowledge).

RECOMMENDATIONS

This study clearly illuminated important aspects of formative assessment. First, it highlighted the importance of specificity on what needs to be indicated to PSTs as assessors, before engaging in the activity. The other important feature of assessment was the shortcoming of PSTs engaging in summative assessment for official use. In our recommendation we suggest that:

·   assessment criterion for peer assessment be clearly defined and sections be added to the teaching practice journals to justify mark allocation for every aspect of assessment and

·   the teaching journal need to have specific sections where subject matter knowledge assessment is emphasised for specific subjects (for example, mathematics, chemistry or physics).

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