

Whose voice matters? LEARNERS

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International and national mathematics studies have revealed the poor mathematics skills of South African learners. An essential tool that can be used to improve learners' mathematical skills is for educators to use effective feedback. Our purpose in this study was to elicit learners' understanding and expectations of teacher assessment feedback. The study was conducted with five Grade 9 mathematics learners. Data were generated from one group interview, seven journal entries by each learner, video-taped classroom observations and researcher field notes. The study revealed that the learners have insightful perceptions of the concept of educator feedback. While some learners viewed educator feedback as a tool to probe their understanding, others viewed it as a mechanism to get the educator's point of view. A significant finding of the study was that learners viewed educator assessment feedback as instrumental in building or breaking their self-confidence.

Keywords: educator assessment feedback; journal entries; learner feelings; learner motivation; learners' voices; understanding of assessment feedback

Introduction

International and national studies have revealed the poor mathematics skills of South African learners. The performance of Grade 8 learners in the Trends in International Mathematics and Science Study (TIMSS) of 1995, 1999 and 2003 (Howie, 2001; 2004; Reddy, 2006) revealed that South African learners had the lowest scores amongst 40 countries. Although there may have been criticism against some of the procedures followed in these studies (Dempster & Reddy, 2007; Vithal, 2008), the results remain a serious concern. The concern regarding this state of affairs seems to be around one primary factor: education quality (Howie, 2004). Essential tools that can be used to improve the education quality and more specifically learners' mathematical skills are for teachers to use effective assessment feedback and for learners to be empowered to voice their experiences of this feedback.

In 1997, educational reform in South Africa was heralded by the introduction of the new curriculum framework, Curriculum 2005 (C2005) (Department of Education, 1997) and later the National Curriculum Statements in 2003. These curricula were designed to address the disparate and poor quality of education that many South African learners had been exposed to in the past (Department of Education, 2003). An important consideration when deciding which direction education curricula should take is the perspectives of learners. They need to be involved in creating and making decisions about their own learning and development. It would therefore be helpful to the curriculum developers to hear from learners how they could be empowered to achieve success. By giving voice to learners we could receive critical responses

that can inform our success and ultimately that of the learners.

There is a proliferation of research in many educational fields that focuses on the policy and practice of educators and education, but few of these focus on the learners. In fact, learners could be involved in the decisions taken regarding their learning and development. This raises questions about the learners: Who are these learners that we are educating? How should we be educating learners to be critical about the education that they receive and to voice these criticisms? Much research focusing on learners' voices has been conducted in the field of Natural Sciences and Mathematics. Stears and Malcolm (2005) investigated learners and teachers as co-designers of relevant science curricula; Julie & Mbekwa (2005) considered what Grade 8 to 10 learners prefer as contexts for mathematical literacy; Vithal & Gopal (2005) researched what mathematics learners say about the new South African reform curriculum; Tobias (2005) considered what students has to say about mathematical word problems; while Moodley (2008) investigated the learners' experiences and perceptions in the mathematics classroom. However, none of this research focused on learners' voices in the context of assessment.

Naidoo, a Grade 9 Mathematics educator, was concerned by the poor performance and the high failure rates of learners in mathematics (Naidoo, 2007) and raised the following questions about the effectiveness of educator feedback: To what extent do feedback practices benefit learners? Do learners have particular feedback needs? Is feedback communicated in a way that learners find useful? What form of feedback information do learners find most useful? Naidoo (2007) was adamant that any research that focuses on assessment feedback needs to explore learners' understanding of it. The concern expressed by Naidoo (2007) about the effectiveness of educator feedback, stemmed from observed instances of learners repeating their mistakes in several tasks, even though feedback on how they could remediate their mistakes was provided. Her experience is supported by Sadler's (1989:73) observations that "... when feedback is given, it is often ineffective as an agent for improvement. Students seem to show the same weaknesses again and again". Likewise, Farrell (1992:656) too, speculates about the learners when he states, "Why do they keep making the same error ..." despite the educators' best efforts.

Our purpose in this article is to describe and share our findings about a classroom based study which explored five learners' understanding of educator assessment feedback in a Grade 9 mathematics classroom in KwaZulu-Natal in South Africa. Furthermore, a crucial purpose of our research was to focus on the learners' understanding and expectations of assessment feedback. Thus the research questions driving the research were: What understanding do learners have of educator assessment feedback, and, what are their expectations of this feedback?

Literature review

This section presents the research literature in the field of assessment and

feedback that informed this study, as well as the theoretical framework that underpinned it. First it is necessary to clarify our understanding of the term “feedback”. The Wordsworth Concise Dictionary defines feedback as a “response or reaction providing useful information or guidelines for further development” (1994:354). However, in providing a meaning for feedback we need to understand it in the context of assessment.

Carr, Mcgee, Jones, Mckinley, Bell, Barr and Simpson (2004) emphasize the purposes of assessment and feedback as follows:

Assessment is an integral part of the learning process and has both formative and summative functions. These two sets of functions are mainly a matter of when they occur in relation to their purpose, and not a differentiation of rigour or quality. Formative assessment is an on-going informed interaction between the teacher and student designed to enhance student learning. Therefore it provides feedback to the teacher and to the student about present understanding and skill development in order to determine a way forward (Carr *et al.*, 2004:6).

Thus, assessment relates to an integral process of appraising, judging or evaluating learners’ work or performance and using this to shape the construction of learners’ understanding of mathematics. Educator feedback to learners is a crucial component of this formative mechanism, and it is on this aspect of assessment that the study is focused.

Sadler (1989) explains the purpose of feedback as addressing discrepancies in knowledge that learners display, namely the difference between their current status and the desired end. Wiggins (1998:60) says that “providing feedback in the middle of an assessment is sometimes the only way to find out how much a student knows” in terms of the final outcome.

Both Sadler’s (1989) and Wiggins’s (1998) concepts support Vygotsky’s theory of Cognitive Development (1978). This theory draws a distinction between a child’s actual development and potential development. The gap between actual development and potential development, that is, between what a child can do unaided by an adult and what he/she can do with adult support is termed the “zone of proximal development” (ZPD) (Vygotsky, 1978:86). Through feedback processes, the “hints and prompts that help children during assessment could form the basis” (Slavin, 2003:48) for children to work in their ZPD. Scaffolding, a term coined by Jerome Bruner, is an approach where a more capable person provides support to less skilled children until they develop the target skill more proficiently (McCow, Driscoll & Roop, 1996; Slavin, 2003). Scaffolding provided during assessment can support learners in attaining targets. During the assessment process, feedback in the form of meaningful and appropriate guidance can be used to develop learners’ skills. According to Carnell (2000) and Clarke (2000) this intervention (feedback) assists learners in crossing their ZPD. Carnell (2000) adds that this form of feedback reflects the view of learning as a construction of knowledge where the outcome is an extension or gaining of knowledge.

In a small-scale quantitative research project that looked at students’

responses to feedback, Young (2000) drew attention to the emotional impact on learners of receiving marks. His research focused on how students react to feedback. Beyond the mature students that Young studied, he cautions that there are “psychologically vulnerable students in all classes” (Young, 2000:409). This view is supported by Pitts (2005) who reminds us that it is easy to underestimate the extent to which “careless feedback might affect their [learners] development and emotional stability” (Pitts, 2005:219). Furthermore, Young’s (2000) study, revealed a relationship between how students responded to feedback received and their self-esteem (judgement of self-worth). Students with a high self-esteem displayed acceptance of feedback received. Those students with low self-esteem were vulnerable to unfavourable judgements.

Methodology

This study was conducted at a co-educational secondary school in KwaZulu-Natal (previously an all-Indian school) with an enrolment of 1,107 learners. Approximately 60% of the learners are African and 40% are Indian, coloured and white learners. The learners reside in residential areas which are within a 20km radius from the school while their socio-economic backgrounds range from lower to upper middle class.

Five learners participated in the research. They were Riva (Indian male), Cleme (Indian female), Edi (African female), Chri (Indian female) and Mabu (African male). Pseudonyms are used to protect the identity of these learners.

A naturalistic, qualitative, interpretive, case study methodology was used. A naturalistic inquiry was used as it has an emphasis on interpretive dimensions where the goal of the researcher is to understand reality (Cohen, Manion & Morrison, 2000). One of the researchers in the study was also the educator, which meant that she was immersed in the context, allowing her to blend in with the respondents in order to get a deep understanding of their views. A qualitative case study approach provided the opportunity to concentrate on a specific instance or situation (Cohen *et al.*, 2000), namely, the learners’ meaning and expectations of assessment feedback.

Data were generated from interviews, seven journal entries and videotaped classroom observations. Focus group interviews were conducted with the five participants. The objective of qualitative interviewing “is a fine-textured understanding of beliefs, attitudes, values and motivations ... of people” (Gaskell, 2002:39). Furthermore, qualitative interviewing complements a qualitative case study (such as this one) by providing a “thick description of a particular” situation so that in-depth or detailed understanding of the case study is presented (Patton, 1980). Learners were interviewed in a group as we were mindful of the words of Cohen *et al.* (2000:287) that “group interviews of children might also be less intimidating for them than individual interviews”. During the interview, learners were free to respond to comments made by other learners and during the process of transcription the comments were attributed to individual learners or to groups, depending on who said

what. In drawing up the cases, only the comments made by the individuals were considered because the purpose was to convey the individual understanding of each of the five learners.

Journal writing was also used as a data collection instrument. Through journal writing, students “are encouraged to think freely in writing ... in their own words ... This writing is free from concern about style and such technicalities as spelling and punctuation” (Mett, 1987:534). Morgan (2001) notes that negative feelings about mathematics stem from the impression that the subject is cold and abstract. However the informal genre of journal writing links mathematics to human experiences as the learners were asked to record their understanding of teacher assessment feedback, as well as their expectations of this feedback, in their journals. The journal writing was done at the end of seven lessons based on the concept of equations of straight lines.

In seeking permission from learners and their parents for their voluntary participation in the research, the educator held a preliminary briefing session about the research study. During this briefing session the educator was deliberately cautious that she did not provide details which could later influence the participants’ responses.

Analysis entailed a descriptive analysis of data for each of the learners. The learners’ understanding of assessment feedback was transcribed from the audio and video cassettes. Cases were developed for each of the learners from their responses to the interview and the journal entries. Each learner’s case was examined and the data were coded and categorized, then themes were developed to give meaning to the data (Cresswell, 2003). The data from the researchers’ field notes, learners’ journal entries, transcriptions of the observed lessons, and interviews were used as sources for constructing vignettes of each of the five learners which are presented here. The process followed in constructing the vignettes was what Polkinghorne (1995) described as narrative analysis. Outcomes were identified and “thematic threads” were identified relating to these outcomes.

Results

The results are presented as case studies of the five learners, Riva, Edi, Cleme, Chri and Mabu. The direct comments of learners used in this section were taken from the interviews and reflective journals.

Riva is a 15-year-old Indian male learner whose home language is English and who has an above average mathematical competence. He stated that “*feedback refers to a teachers report back on any kind of work that is done*”. The use of the words “report back” suggests that he expects the educator to say something about his task. His comments suggest that it is the teacher’s responsibility to respond to the learner’s work. Riva also made a comment about the importance of the teachers’ attitude. He said that he prefers feedback that encourages learners and not negative feedback that belittles learners. He stated that “*I like feedback that is encouraging and motivating ... not [to] ridicule or mock you*”.

Edi is a 15-year-old African female learner, whose home language is isi-

Zulu although she has a very good command of English. Her mathematics ability ranges from average to above average. She defined feedback as when an educator has given learners a task, then he/she “*will mark the work and will point the mistakes*” to the learners. Edi’s definition of educator feedback focused on the identification of mistakes. Edi also noted that through feedback the educator explains “*what [the learner should] look out for when given a task*”. She thought that through feedback, learners are conscious of not repeating their mistakes. She explained that “*feedback helps the student to recognize their mistakes and where they tend to go wrong and they rectify the mistake the next time they do a task*”. So Edi saw the teacher as identifying the mistake so that the learner can then correct his/her mistake. The idea of feedback as identifying mistakes is extended to the teacher “*giving advice or guidance on how you’re doing ... she’ll give [advice or guidance] on how to correct your work*”. A comment that is of concern is that the teacher should not embarrass the learner when offering verbal feedback. She commented in the interview that “*it is good ... when the teachers won’t embarrass you ...*” by making comments such as “*you’re so stupid*”. She also remarked, “*if the teacher explains the maths ... its okay ... it must not be personal*”.

Cleme is a 15-year-old Indian male learner whose home language is English and he is considered to be a high achiever in mathematics. In his first journal entry his perception of feedback reads, “*feedback is saying something from the teacher’s point of view*”. The phrase “*... saying something ...*” was elaborated upon when he added that feedback “*... is also a good way to communicate*”. Cleme provided a reason why feedback is a good way to communicate when he said “*so that people know what the teacher really wants*”. Thus feedback is portrayed as means of communication of the teacher’s view in order to learn what he/she requires. This perception is further elaborated on during the group interview. Although Cleme maintained the notion of feedback being a form of communication, he accepted that different forms of feedback are aligned to communication because “*rings, crosses ... [are] a form of communication with the student*”. Cleme placed great importance on the teacher’s point of view and the need for the learner to know what the teacher is looking for so that the learner could align himself/herself with the teachers’ expectations. This indicates that he sees feedback as an opportunity to receive further clarity on the objectives or outcomes of the assigned task. Cleme also seemed to be concerned about shy learners when he said that there are some learners “*that are afraid to ask the teacher [for] help*”.

Chri is a 14-year-old female learner of Indian descent. Her home language is English and she is an average achiever in mathematics assessments. In her first journal entry Chri records her definition of feedback as a teacher’s task of informing learners of their performance. She wrote that feedback “*is a task that the teacher does to inform us of how we performed*”. She stated that the two purposes of feedback are “*to ensure that we do good and understand*” and “*it also tells you where you went wrong... what to do to get better... ways you can improve your working ability*”. According to Chri, the first purpose of feed-

back is to ascertain that learners understand the work and do well. The second is to reveal to learners errors so that they can identify where they went wrong and hence establish ways to improve their ability. During the group interview, she maintained “*it [feedback] makes you a better person ... meaning in your schoolwork*”. The importance of the individual in learning is clearly illustrated in this comment and the importance in improving learning was reiterated in her journal entry.

Chri also saw feedback as providing a challenge — this was evident from the interview when she stated, “... *feedback is also very challenging*”, and her journal entry where she wrote “*it is very challenging*”. She explained this challenging aspect as follows: “*when a teacher comes to you ... say that you need to do better; you need to improve*”. She perceived the challenge posed through feedback as inciting competitiveness amongst learners in that “... *you want to compete with your friends*”, “... *I like competing with my friends. It is quite fun ...*” Chri was also concerned about shy learners being sidelined because they are scared to ask the teacher questions; this is evident from her comments that “*people that are shy ... do not like to ask the teacher questions about maths*”.

Mabu is a 16-year-old African male learner, whose home language is isi-Zulu. He is reserved and works mostly by himself. His mathematics competence is average. Mabu understood feedback as checking and reporting on work. His journal entry read: “*The work ... is checked and a report that's feedback is given*”. Mabu's journal entry also stated “*when you don't understand something ... the teacher explained it back to you she/he is doing the feedback to you*”. From the former statement, it is apparent that he perceives feedback to serve as remedial teaching. In addition, during the group interview he stated: “*if ... there's something ... I don't understand ... she will point it to you. She's giving you feedback*”.

Mabu articulated a concern about sometimes getting lost because of the language used by the teacher. In his interview he stated, “... *maybe the teacher can say the higher language ... the mathematical language that I won't understand*”. He stated further that although he “*can understand ... even mathematical words*” in the written form, sometimes “*I get lost I ... in mam's language sometime*”.

Discussion

The results of this study indicate that learners have meaningful perceptions of the concept of ‘educator feedback’. The analysis of the data suggests three themes about the learners’ perceptions of the role of the educator in providing feedback. Firstly, the learners’ understanding of educator feedback conveys a broader perception of the term ‘educator feedback’ than initially expected. Furthermore, their understanding of educator feedback provides some insights into the value and purposes of feedback. Riva states that “feedback refers to a teacher's report back on any kind of work”. Mabu's definition of feedback is broader than Riva's. Mabu perceives educator feedback as more than a mere report. To him educator feedback is when “work [is] checked and

a report ... [is] given". The word 'checked' suggests that the work should undergo some scrutiny or inspection before being reported on.

Edi's definition of educator feedback relates to when the teacher "will mark and will point ... mistakes". Her definition of educator feedback highlights the role of feedback as diagnostic. She further explains that the diagnosis of errors through feedback results in learners "rectify[ing] the mistake the next time they do a task". Apart from diagnosis of errors, Edi expects educator feedback to provide "advice and guidance on how ... to correct your work". Chri also perceives feedback as diagnosis of errors when she wrote: "it tells you where you went wrong". Like Edi, Chri also anticipates feedback to "tell you where you went wrong" and to suggest "what to do to get better ... improve your working ability". Furthermore, Chri identifies the effect of feedback that diagnoses errors and recognizes room for improvement. According to her, this is when feedback presents a challenge to the learner to improve. She also believes that this challenge urges learners to be competitive. The diagnostic purpose of feedback is further reiterated by Mabu during the group interview. He says if there was anything that he did not understand, the educator "will point it [out]". However, unlike Edi and Chri who expect guidance on how to improve, Mabu expects feedback to serve as remedial teaching. He writes that when the educator "explained it back to you she/he is doing the feedback to you".

Learners are insightful when they note that the purpose of feedback is a tool that can improve their understanding. This is confirmed by Black, Harrison, Lee, Marshall and William (2003) who stated that feedback provides information about gaps in learning. From the data there emerged a parallel view where learners believe that feedback identifies or points out their errors. It is significant that learners' understanding of feedback has resonance with Vygotsky's theory about the ZPD (Vygotsky, 1978) as learners emphasize the important role played by scaffolding during their learning process.

Secondly, one learner thinks that the purpose of feedback is to convey the teacher's point of view. Cleme sees the teacher as being the ultimate authority and that the learners' job is to figure out what the teacher is looking for in the work being assessed. He portrays feedback as communicating the teacher's expectations by offering clues that would lead him to the teacher's goal. This suggests that he views the teacher as being the authority figure who knows where they (the learners) need to go. This view of the teacher as an authority figure is contrary to the role of the teacher envisaged by C2005, where a teacher is seen as a person who facilitates the learning of her/his learners (DoE, 2003).

Cleme's comments reveal that he sees feedback as the teacher providing further clarity on the learning outcomes of a task. This suggests an understanding by Cleme, that the outcomes of the task are sometimes more complex than they seem, in that they entail more than what is described. This is supported by Hussey and Smith (2009:109) who comment "it is generally not possible [for the teacher] to state the learning outcomes precisely ... because all learning, ... is part of a continuum". A teacher will need to have the skill

and the knowledge of working out the extent of each learner's knowledge, level of understanding, capability and attitude. Within the diverse group of learners in the classroom, a teacher would be expected to provide suitable feedback to each particular learner, enabling each individual learner to develop to his/her potential.

In a similar vein, Clarke (2000) defines effective feedback as when "the teacher must give feedback against the focused learning objectives of the task (whatever the child was asked to pay attention to), highlighting where success occurred against those objectives and suggesting where improvement might take place against those objectives" (2000:37). However research suggests that feedback "is most effective if it focuses students' attention on their progress in mastering educational tasks" (Crooks, 1988:468) and relates to what their instruction is focused upon (Zellermayer, 1989). Crooks (1988) points out that feedback that places such importance on personal progress promotes self-efficacy, encourages effort attributions, and decreases attention to social comparison and competition.

A third theme that emerges from the analysis is the role played by feedback in building or breaking a learner's self confidence. All the learners expressed an awareness of shy learners not being confident enough to approach the teacher and learners being insulted by the teacher. The learners express a strong concern that the teacher may belittle learners or cause certain learners to lose their confidence because of negative comments. In fact, Edi used the words, "you are so stupid" to describe what she did not want to hear. This issue has been identified by other research studies conducted overseas. Black *et al.* (2003) reviewed numerous reports that disclosed that verbal feedback affects learners' self-image and is unlikely to improve their involvement in tasks when learners are only told how well or how badly they have done. Young explains that the "most powerful and potentially dangerous dimensions of students' feelings about feedback is the extent it impacts on themselves as people" (2000:414) and his study also reveals a sharp contrast between students of low and high self-esteem. From Young's study (2000), it was apparent that while students with low self-esteem take any comment as an indictment of themselves; those with a high self-esteem are able to take the comments in a different spirit, viewing them as bearing on their work only. In his study, students with low self-esteem perceived comments as personal and of having a great impact on them. Verbal comments that are derogatory are viewed as "absolutely annihilating" (Young, 2000:414) for the learner in the learning experience.

More recently, Moodley (2008) conducted a study on learners' attitudes and beliefs about mathematics with a sample of 32 Grade 11 mathematics learners. Most of the learners in her study indicated that their mathematics teachers displayed a negative attitude towards them. For example, 91% of her sample indicated that the teacher ignored them when they asked questions and 93% indicated that the teacher made them feel silly when they asked questions in the maths class. Some of the learners' comments include: "He tries to be funny but he doesn't know that he actually embarrasses and hurts

people” and “You know you afraid to ask questions. Maybe the teacher will make you feel stupid” and further, “I hate being looked down upon”. These comments support the contention made by the learners in our study that some teachers sometimes make negative comments to learners and when this happens, they are embarrassed and feel belittled by these disparaging comments.

Implications

Within the past decade changes in South Africa have spread into the educational sectors, transforming teaching and learning. Changes to assessment have always been recognized as an important means of achieving curriculum change. However a gap in the policy is the provision of detailed guidelines on ways of providing feedback to learners. The NCS for Grades (10–12) policy document (DoE, 2003), has a whole chapter devoted to a discussion of assessment. However the chapter consists of sections devoted to an overview of the reasons for assessment, the different types of assessment, methods of collecting evidence, recording and reporting of data, subject competence descriptions, promotion and a final section on report cards. There are no guidelines or advice on providing formative assessment feedback.

The learners in this study revealed deep understandings about what assessment feedback is. It was also revealed that learners have demanding expectations of educators. They expect an educator to provide meaningful feedback of their work, to diagnose their errors and to show them how they could progress. They expect the educator to provide feedback which will improve their understanding. Furthermore, they do not welcome derogatory comments about their abilities from their educators. The study has revealed that learners view the educators’ role in assessment as going beyond mere implementation, by focusing on providing feedback that makes a difference to the learners’ understanding in a manner that is supportive of the learner. We suggest that it would be helpful for education authorities to acknowledge that the stipulation of various assessment methods is not sufficient. Guidelines on educator assessment feedback would be an essential tool for educators. However educators themselves have to acknowledge also the role they play in building (or breaking) their learners’ self confidence. Opportunities for educators to improve their skills in feedback practices could lead to better assessment practices in South Africa and an improvement in learner performance.

Interestingly, this study has revealed that learners, when granted a voice, are able to express a critical, confident and independent stance about the education they experience, which is precisely the kind of thinking that our new curriculum seeks to develop. According to the NCS for Grades (10–12) policy document (DoE, 2003:2-4), “OBE encourages a learner-centred and activity-based approach to education,” and the development of “high knowledge and skills” requires the “empowerment of those sectors of the population who were previously disempowered by a lack of knowledge and skills” and it “seeks to create a lifelong learner who is confident and independent ... [has] the ability to participate in society as a critical and active citizen” (DoE, 2003: 3).

As educators, we need to reflect on our current thinking and actions about assessment. Moreover we need to “rethink the relevance of what we expect the learners to learn” (Senge, Cambron-McCabe, Lucas, Smith, Dutton & Kleiner, 2000:27) from assessment feedback. We should be developing learners who can cope with change and assert themselves responsibly. A possible strategy for learners to develop this is to give them a voice to express their thoughts and feelings with regard to their learning and development. This should not be a one-sided action. The learners’ voices are important for both teacher and learner to have in the learning interaction. Giving space and opportunity for learners’ voices to be heard through research is the beginning of how we need to develop teachers to be responsive to learners’ voices in a constructive, supportive and respectful manner.

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