Secondary pre-service teachers' reflections on their micro-teaching: Feedback and self-evaluation

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Abstract

Reflective practices in pre-service teacher education enables teachers to evaluate their pedagogical skills. This study aimed to integrate different assessment techniques such as peer assessment, lecturer assessment and self-assessment in a microteaching setting. Using 20 pre-service teachers' post-microteaching (MT) reflection, we explored how these teachers viewed peer feedback and lecturer feedback. This study also analyses how pre-service teachers self-evaluate their own MT. The findings indicate that pre-service teachers find both peer and lecturer feedback useful in terms of identifying their strengths and weaknesses as well as providing incentives for improvement. Furthermore, the findings show that when engaged in self-evaluation, the pre-service teachers tend to focus more on self-knowledge. The findings reaffirm the importance of peer and self-evaluation in teacher education.

Keywords

Reflection; self-evaluation; feedback; metacognitive knowledge.

Introduction

Dewey (1933) defined reflection as a dimension of thought that involves a situation of uncertainty followed by some action to resolve the issue. There are a number of terms that capture this concept, such as self-assessment or self-evaluation, reflection, reflective practice, metacognition, and self-regulated learning. While these are used to describe similar levels of personal thought, the common underlying element is captured in the two processes identified by Dewey (1933). In other words, these constructs require the self to ascertain its current situation with respect to any particular area of learning, followed by working towards the next steps in learning, with a view to improving. The term reflection, as used in this paper, takes up this understanding. From a teacher's perspective, reflection is important because teaching is an evolving process that requires teachers to reflect on what they do on a daily basis and to work towards improving their practice. Reflection is often linked to a teacher's professional learning. That is, as teachers reflect on certain ideas, they gather new meanings of different situations, and they adapt and modify these new learnings to improve their practice. According to Loughran (2010a), reflection does not include the simple search for quick solutions to problems, rather it enables teachers to critically look at the process of teaching and learning.

In discussing the term reflection, the notion of metacognitive knowledge presented by Krathwohl (2010) is useful. Krathwohl (2010) explains that the dimensions of metacognitive thinking include strategic knowledge, knowledge of cognitive tasks, and self-knowledge. These categories of knowledge seem useful for the concept of reflection because they allow teachers to automatically reflect upon their knowledge of teaching as well as on the gradual awareness of the self as a teacher. Apart from utilising their own knowledge of the self (i.e., metacognitive knowledge), teachers can also improve their reflection practices by utilising feedback. Feedback is information that is provided by any source such as teachers, peers, parents or even self-regulating one's performance, and this information is then used to modify one's thinking or behaviour (Brooks et al., 2019; Hattie & Timperley, 2007; Shute, 2008). Feedback has featured strongly in teaching and assessment models in the past two decades. For example, Black and Wiliam's model of formative assessment recognises feedback as the "big idea" in the classroom teaching and learning (Black & Wiliam, 1998; Wiliam, 2007). Apart from the self, teachers and peers can also be a useful source of feedback.

In teacher education, reflection involves looking at one's practice from a number of different perspectives and examining the situation in order to develop strategies to improve one's own practice. This understanding of the term reflection is useful for initial teacher education students as well as practising teachers because teaching is a complex task that requires a teacher to constantly look back at the challenges, then find and use new ways to improve their practice.

Reflection has been used at various levels in the education sector. For example, reflection has been an important source of learning and improvement at the pedagogical level (Loughran, 2010b), at the student self-regulation level (Bonner & Chen, 2019; Cowie, 2005; Dayal et al., 2017; Hattie & Timperley, 2007; Klenowski, 2002), and at the leadership level (Ersozlu, 2016). The power of reflection at the classroom teaching level offers teachers the opportunity to identify their own strengths and weaknesses in light of the criteria and standards for teaching evaluation. In case of any shortcomings, they can then suggest or think about ways of doing things better in future practices. In initial teacher education programmes, a technique that is commonly used to develop pedagogical skills is called micro-teaching (MT). MT gives pre-service teachers a useful platform to show and develop their teaching skills.

In light of the relative importance of reflection in teacher education, this study looked at pre-service teachers' reflections on their MT episodes based on two different sources of feedback information: peer assessment and lecturer assessment. The main aim of the study reported here was to explore how pre-service teachers made use of lecturer and peer feedback when reflecting on and evaluating their own MT. Based on 20 pre-service teachers' post-MT reflections, we explored the following research questions:

1. What are pre-service teachers' views on peer feedback they received?
2. What are pre-service teachers' views on lecturer feedback they received?
3. How do these pre-service teachers evaluate their own MT based on different sources of feedback?

After presenting the theoretical orientation of the study, a literature review is presented. This is followed by the context and research methods of the study. Results are then presented and discussed. Finally, a short conclusion, including the study's limitations and recommendations, is presented.

Theoretical orientation

In this study, the socio-cultural understanding of learning (Klenowski, 2002; Lave & Wegner, 1991; Willis & Cowie, 2014) was employed. From such a perspective, learning is represented as participation rather than purely cognitive acquisition. When learning is viewed from such a lens, our personal narrative of what counts as evidence of learning also needs to change (Willis and Cowie, 2014). This means that we can no longer see one type of evidence of student learning as sufficient and equitable for all learners. According to Willis and Cowie (2014), seen from a socio-cultural perspective, effective assessments are those that have positive consequences for students.

In teacher education, the socio-cultural perspective allows for greater student and instructor engagement in assessment because socio-cultural learning is seen as situative (Bell, 2010). This means

that assessments must be contextualised to the situation represented by processes of learning and an overall goal of every individual, and no longer be guided by the assumption that 'one size fits all'. This means that the classroom needs to be seen as a social place where teachers and students come with different ideas. The activities and resources that teachers and students use inside the classroom provide a platform from which to discuss ideas based on one's own thinking and the involvement of others. Because pupils come to the classroom with different perspectives about teaching and learning, these perspectives need to be understood first before any assessments are conducted. Once a student's initial understandings are ascertained, these could then be used to guide the next steps in the assessment process. Later, upon thoughtful consideration about students' learning, teachers may think about engaging students from the start—in selecting or designing assessment tasks, rubrics, and in grading and evaluating their own learning and that of their peers. These theoretical perspectives allow teachers as well as students to see, evaluate and provide quality feedback on how each individual is thinking and using the opportunities and managing the challenges that the learning environment offers. The individual learners also reflect on their own learning based on their own thinking and that of other more knowledgeable peers and teachers.

Such a perspective is necessary because it is highly likely to assist educators in knowing how students may contribute to their own learning. By self-evaluating and incorporating the opportunities provided by peer and teacher assessments, they are able to actively participate in ascertaining their own achievement as well as contribute towards a socially and culturally rich environment of teaching and learning. With such a perspective on learning and assessment, combined with a view of 'teachers as learners' (Bell, 2010), the study ventured into the process of allowing pre-service teachers the opportunity to learn about their own learning by carefully incorporating peer and instructor assessment and feedback in the context of micro-teaching. A socio-cultural framework was important for this study because we were interested in knowing whether or not our pre-service teachers would derive any positive benefits from engaging in varying levels of peer and self-assessments and this theoretical lens is helpful when accounting for teachers' thinking and action within socio-cultural and institutional contexts (Bell, 2010).

The role of peer and self-assessment

Peer assessment involves one student's assessment of the performance or success of another (Noonan & Duncan, 2005). Self-assessment is when a student assesses his or her own performance. Both of these processes allow students to think critically about learning. In doing so, students try to make sense of the criteria and standards of performance that guide their work as they attempt to critique their own or peer's work in relation to these criteria and standards. Watt (2005), in research involving mathematics teachers in Australia, noted that the use of peer-assessment strategies had the potential of improving learner mastery of mathematical knowledge. Studies involving teachers, such as that of Nyaumwe and Mtetwa (2006) and Noonan and Duncan (2005), suggest that involving peers in assessment can have motivational as well as cognitive advantages. This is because peer assessments contribute to 'feelings of control', giving in-service student teachers higher confidence and better understandings of implementing their teaching strategies.

Nyaumwe and Mtetwa (2006) identify 'peers' as fellow in-service teachers working at the same teaching practice school. In their study involving in-service mathematics teachers, the researchers investigated whether the lecturer-peer assessment of classroom practice of in-service teachers enhanced the implementation of constructivist-related strategies when teaching. The findings of this research revealed that the use of lecturers and peers to assess in-service teachers is beneficial to the development of professional skills and is an effective way of providing a formative evaluation of in-service teachers' instructional practice. This is because lecturers and peers use different perspectives in identifying various teaching techniques due to their varying experience and content knowledge. The study concluded that the use of such assessments may eventually help in-service teachers "to explore a variety of assessment pedagogical ideas" and "enhance their implementation of desired pedagogical practices" (Nyaumwe & Mtetwa, 2006, p. 40). Furthermore, according to the authors, reliance on lecturer

assessment of teaching practice was justified on the grounds that lecturers were impartial and that assessments done by them alone were reliable. According to Black (1998), such a view of assessment lacks aspects of formative evaluation and is good only for summative purposes.

In another study involving teachers, Noonan and Duncan (2005) investigated the nature and frequency of high school teachers' use of peer and self-assessment. In their survey of 118 high schools' teachers in Western Canada, they explored the extent to which teachers used peer and self-assessment in their classrooms. The results indicate that many teachers find peer and self-assessment useful and that there is a potential for greater classroom applicability. Adding to the cognitive and motivational benefits identified by Nyaumwe and Mtetwa (2006), the Noonan and Duncan (2005) study noted potential benefits of peer and self-assessment in developing and shaping students' attitudes towards learning, effort, and participation. In addition, taking part in these assessments supported students to work well in class and completing homework.

Similar findings have been reported in other studies involving peer and self-assessments from different learning contexts. Ertmer et al. (2007) study, involving education personnel and teachers undertaking an online mode of study during an undergraduate course, noted that online learning participants in their course found peer-assessment useful for reasons such as peer recognition of participant ideas, providing access to multiple viewpoints and a greater quantity of feedback. One of the important findings noted was that giving and receiving feedback improved the quality of feedback that one could provide. In other words, as participants gave and received more feedback, their own capacity for providing feedback increased. This is an important finding for teacher educators because it points to the importance of the notion of teachers and teacher educators creating opportunities for participants to participate in providing feedback using peer and self-assessments.

In summary, there is an increasing volume of studies registering support for peer and self-assessments for reasons such as cognitive and metacognitive benefits. Student involvement in assessments has proven to be effective not only in terms of student achievement but for other reasons, including affective ones. In addition, one of the major benefits of student involvement in assessment is that such assessments have the potential to improve and transform the process of teaching and learning. This means that peer and self-assessments can support effective teaching and learning (Blackburn, 2017; Black & Wiliam, 1998; Tillema, 2014; Wiliam, 2007). Students are no longer seen as mere receivers of assessment; they are increasingly being recognised as active participants in developing assessments and assessment rubrics as well as grading assessments of peers and that of their own. In fact, a meta-analysis of factors impacting classroom effectiveness revealed that self-assessment by learners tends to have the greatest impact on their achievement among other factors such as teachers, or home background of students (Hattie, 2008).

Amidst such encouraging research findings, the current study was designed with an implicit intention that providing a platform for teachers to give and receive feedback can have longer-term benefits such as improvement in one's own provision of feedback. Studies of this nature can also assist teachers who do not use and support peer or self-assessment for a variety of reasons such as lack of reliability and validity of such assessments (Ertmer et al., 2007; Chang, 2011) to experience first-hand the benefits and challenges of giving and receiving feedback. In light of the ample amount of research findings in support of peer and self-assessments at various levels of education, including primary education (Sadler & Good, 2006), secondary (Tseng & Tsai, 2007) and higher education, including teacher education (Chang, 2011; Ertmer et al., 2007; Khonbi & Sadeghi, 2012; Sivan, 2000), the current study hopes to shed some light on how a small number of secondary pre-service mathematics teachers make use of peer and instructor feedback while self-evaluating their own microteaching session. This research aim is important because research findings such as that of Campbell and Evans (2000) and Joyce et al. (2009), amongst others, demonstrate that pre-service teachers tend to rely heavily on traditional forms of assessments, such as written tests, to assess learning. Teacher educators, therefore, should model different forms of assessments, such as peer and self-assessment, in their own courses, providing pre-service teachers direct experiences with such assessments.

Research method

This study focused on pre-service teachers enrolled in a teaching methods course at a Fijian university. The university offers a four-year Graduate Certificate in Education (GCEd) programme as part of its initial secondary teacher education programmes. Upon successful completion of their Year 13 schooling, pre-service teachers are required to take two teaching subject majors together with the GCEd programme. As part of their GCEd programme, pre-service teachers are required to pass a core course in teaching methods. This course is usually taken in the second year of study.

The teaching methods course focused on developing effective pedagogical practices. The course provided three hours face-to-face (f2f) learning per week for the students, which consisted of a one-hour weekly lecture and a two-hour workshop. The two-hour workshop session per week provided the students with the platform to engage in pedagogical discourse and practices in their respective teaching subject areas. The workshop session for which the first author was responsible for the 14-week semester involved 25 pre-service secondary mathematics teachers. The course not only supported pre-service teachers in becoming professionals in pedagogy, but it also challenged them to become reflective practitioners. This was reflected in the teaching methods *course outline* which highlighted that the course provides students with the opportunity to reflect on and examine their experiences and question what they may have taken for granted in their school or classroom to seek and realise new understandings. In order to promote teacher self-reflection, we encouraged our participants to use peer and lecturer feedback to guide the process.

The study utilised a qualitative research method. As described by Hennink et al. (2011), a qualitative research method intends to provide insights into the lives, experiences and understandings of the research participants. To gather the participant's perception of the feedback they received from their peer assessor and lecturer, an action research approach was used. Action research is often used by educators as a tool to assess their teaching strategies. As a systematic process, the elements of the data collection need to be predetermined before the research is carried out. This study was embedded in the course, meaning the participants were enrolled in the course whilst the study was carried out, which further supported an action research approach. Upon sharing the overall purpose of our study and obtaining the pre-service teachers' informed consent, we discussed the key elements of our research process with them.

In this case, the main element of data collection was the pre-service teachers' reflection on their microteaching assessment. As part of the course requirement, each pre-service teacher had to present a 20-minute microteaching session. Prior to the microteaching session, these participants were briefed with the microteaching assessment criteria. The MT lesson assessment form is a pre-developed tool that assesses six key areas of teaching: planning, implementation, assessment, content knowledge, communication, and classroom management. Both the peer assessor and lecturer used the same lesson assessment form. The familiarisation with the key assessment areas was done with an aim to prepare for better peer-assessments. Each participant was assigned a peer assessor together with the class lecturer to assess their microteaching. Each microteaching was also video recorded. After their microteaching, the participants were to follow the reflection guide provided prior to the microteaching assessment and use the video recording, as well as the feedback received from their peer assessor and lecturer to write a reflection on their microteaching. The reflection guide contained two major prompts: *What are your main strengths and weaknesses based on your own analysis of the microteaching video? Did you find the peer and lecturer feedback useful?* It was reasonable to assume that these participants, who were in their third year of teacher training programme, would be able to use various sources of feedback (such as video, peer and lecturer feedback) and a number of prompts to reflect.

These reflections were analysed using a thematic approach after each reflective piece was read by both the researchers. Data, with respect to the first two research questions, were analysed thematically using themes derived from the limited number of comments provided by our participants. The participant texts that mentioned 'peer' or 'lecturer' with the term 'feedback' were highlighted using colour codes (green for peer, blue for lecturer). These were further grouped into common themes.

For research question three, we used a similar approach during initial reading, using the colour pink to highlight their self-reflections assumed to be based largely on their MT video. We used the categories of metacognitive knowledge under the revised Bloom's Taxonomy (Krathwohl, 2010; Pintrich, 2002) to make sense of these self-reflections. The common themes identified from our MT assessment form that was used by peer and lecturer assessors such as voice (confidence), body language, pedagogy (lesson organisation), content knowledge and overall (general comments) were used as a basis for initial analysis of self-reflection. These themes about self-reflections (23 comments for voice; 19 comments for body language; 20 comments for pedagogy; five comments for content knowledge; 17 for overall, general comments) totalled 84 (pink coloured). The 84 comments were classified using the following three categories: strategic knowledge; knowledge about the cognitive task, including appropriate contextual and conditional knowledge; and self-knowledge (Krathwohl, 2010; Pintrich, 2002). While these categories seem more contextualised towards pupils' metacognition in a classroom situation, we used these categories to make sense of how pre-service teachers reflected on their microteaching, noting that such a complex learning situation deserves a more holistic lens to understand. Recognising this complexity, examples are provided below of how we adapted these categories for our analysis.

Table 1.   Data Analysis Framework

Categories of metacognitive knowledge	Explanation from pre-service teacher reflections
Strategic knowledge	Pre-service teachers recognising general teaching strategies, for example, lesson planning, teaching methods, assessment approaches. Example from our study: "My planning needs improvement."
Knowledge about the cognitive task, including appropriate contextual and conditional knowledge	Pre-service teachers acknowledging the contextual and conditional factors, for example, time constraints for various teaching methods or using different pedagogy when dealing with students with learning difficulties. Example from our study: "I am used to using the Australian Syllabi, but I used the Fijian one this time."
Self-knowledge	Pre-service teachers reflecting on one's own personal characteristics, for example, voice, confidence, motivation, language, body language, attire, etc. Example from our study: "I accept the fact that I was feeling a bit shy and nervous at the beginning…"

While the MT reflections were part of the course requirements, our participants gave us written consent to analyse their MT reflections. For confidentiality reasons, no participants' names were used during data analysis. Instead, we used numerals to name each participant (i.e., participant 1 to participant 20).

Results and discussion

Views on peer feedback

Twenty out of 25 pre-service teachers explicitly noted comments about peer feedback. One of the areas that appeared strongly in these comments was related to the helpfulness of peer feedback. Seven out of the 20 participants said that peer feedback was useful during their microteaching self-evaluation because it helped them understand their strengths and areas that needed improvement. Peer feedback also helped

in motivating the participants. However, the majority of the participants did not provide much detail as to how the peer assessment and feedback were useful to them. Yet the information provided gives helpful insights into the usefulness of peer assessment. For example, three of the participants wrote:

> The peer assessment became one of the most unique and interesting bits as it was helpful to see what our peers think of us. (Participant 1)

> The peer assessment helped me understand my strengths better and focus on what needs improvement. (Participant 2)

> Peer perception helps in improving lesson delivery and is very motivational. (Participant 8)

From the seven participants who found peer feedback useful in terms of identifying their strengths and weaknesses, two participants from this category were even able to compare lecturer and peer feedback. The two noted that peer feedback and lecture feedback appeared different at times, with one of them claiming that "the peer was able to understand the subject content better than the lecturer" (Participant 21). The analysis also notes that nine out of 20 participants felt that peer assessors provided better grades than the lecturer. Three of the participants mentioned that while peers provided good grades, there were fewer comments than those provided by the lecturer.

Views on lecturer feedback

Twenty-one out of the 25 reflective pieces contained some mention about the usefulness of lecturer feedback. In comparison to the usefulness of peer feedback, a higher number of participants found the lecturer feedback more useful. On a similar note, the majority of the participants felt that lecturer feedback was more detailed and expressive. This means that the pre-service participants felt that higher quantity and quality of the feedback was what differentiated the lecturer and peer feedback. In terms of quality of feedback, participants felt that the lecturer feedback was useful because it focused on a wide range of aspects of the microteaching, with most mentioning some components related to improvement. Some mentioned that:

> It helped me identify numerous loopholes in my teaching. (Participant 15)

> The comments were useful because it helped me realize that I need to improve a lot. (Participant 24)

Furthermore, some of the participants noted implicitly that lecturer feedback carried more value for them. In other words, the participants were able to compare the lecture and peer feedback, this time writing more in support of lecturer feedback. This support turns to reflect a relatively higher degree of trust placed on lecturer feedback mainly due to reasons such as the lecturer being more experienced and knowledgeable compared to their peers. As mentioned by Participant 10:

> The most important feedback for me was from my coordinator, he has more experience thus the feedback was very useful. Very encouraging and motivating feedback.

Finally, four out of the 21 participants mentioned that the lecturer provided more feedback but provided lower marks than their peer assessor. The specific areas in which peer assessors provided higher marks were not pursued in this study.

Participants' self-evaluation

Out of the 84 comments on self-evaluation, 41 comments were focused around self-knowledge. The two important categories that the pre-service teachers reflected on were voice and body language. For voice, mixed evaluations were identified as some of the participants felt that their voice was loud and clear while others felt that their voice was soft and shaky. In terms of body language, the pre-service teachers

picked on characteristics such as eye contact, movement in class, use of gesture, attire, appearance, and language. Again, some found these characteristics a positive aspect of their teachers while others felt rather unhappy about these characteristics and noted the need to improve. For example, the following quotes reveal pre-service teachers' awareness of their self:

> I was very conscious of my language as English is my second language. (Participant 11)

> Voice control was very good. I found numerous errors in my language. (Participant 12)

> My eye contact and gesture helped me gain my students' attention. (Participant 7)

> Folding my arms at certain times and playing with my fingers were other drawbacks. (Participant 10)

Furthermore, 25 out of the 84 comments reflected some aspects of strategic knowledge. We categorised these into pace of delivery, questioning, lesson planning including lesson objectives and teaching resources. These elements were identified on a frequent basis as either weakness, strength or challenge. The top three elements repeatedly mentioned were the pace of lesson delivery, syllabi, and resources:

> Time and planning need improvement as from the video I can tell I was very fast and did not give students time to digest the information before moving to the next one. (Participant 5)

> The availability of the resources needs to be considered before carrying out the micro-teaching. (Participant 3)

> I am not used to the Fijian syllabi as I have been teaching in Tonga so using the Fijian syllabi in my microteaching was challenging and a bit confusing for me. (Participant 14)

Moreover, five of the 84 comments focused on knowledge about the cognitive task, including appropriate contextual and conditional knowledge. Of these five comments, three focused on time constraints of the lesson delivery while two focused on the context of the content taught. Participant 14, who was one of those who mentioned time constraints, also felt a lack of preparedness and had earlier stressed that the use of syllabi different from what was used in the participants' country required more preparation time.

> I am used to using the Australian and Tongan syllabus but I used the Fijian one this time and this required more preparation time … the lesson was poorly timed. (Participant 14)

The comments in regard to time constraints were quite general as the participants did not discuss much detail regarding why time constraints arose and how they could manage time better. For instance, participant 19 mentions that time was poorly planned. Similarly, participant five mentioned that time and planning needed improvement.

Generally, the frequency of the comments of these pre-service teachers on self-knowledge appears to be more than that on strategic knowledge or knowledge about the cognitive task.

Discussion of findings

Pre-service teachers in this study generally commented in favour of both peer and lecturer feedback. The participants found peer and lecturer feedback important in terms of realising their weaknesses and strengths. While participants spoke about the usefulness of the feedback received from their peers and the course lecturer, they seem to focus a lot on the marks they received. While the frequency of the usefulness of peer feedback was relatively lower than that of the lecturer feedback, a small number of participants noticed benefits of peer feedback in terms of motivation as well as improving strategic knowledge. The findings agree with previous studies involving teachers such as that of Nyaumwe and Mtetwa (2006) and Noonan and Duncan (2005) that concluded that involving peers in assessment can have motivational as well as cognitive advantages. In our study, a small number of pre-service teachers

found peer assessment to be motivational and better in quality than the lecturer feedback. In other words, these participants' reflections showed that having peers as assessors provided them with a 'feeling of control' (Noonan & Duncan, 2005; Nyaumwe & Mtetwa, 2006). It must be noted that while these pre-service teachers had some understanding about the MT assessment criteria, they did not receive any specific instruction in providing feedback. Recent research points out that providing high quality feedback, such as feedback about process and self-regulation, remains a challenging task for teachers (Brooks et. al, 2019).

While there were glimpses of the usefulness of peer feedback, a relatively higher number of participants continue to show more confidence in lecturer feedback. This reveals that pre-service teachers continue to rely more on lecturer assessment of teaching practice because they feel that lecturers provide greater quantity and higher quality of feedback. The pre-service teachers view the course lecturer as more knowledgeable and experienced. On the other hand, some participants felt that feedback provided by the peer was lesser in quantity. This could be because the peers have had little experience in assessing teaching.

With respect to the pre-service teachers' self-evaluation, a higher frequency of comments is noted on the self-knowledge dimension of metacognitive knowledge. Our pre-service participants noted personal characteristics such as body language and general appearance, voice and tone. One of the reasons for this could be that they were able to see themselves on the micro-teaching video. As expected, it is natural to focus a lot on the self-dimension when watching oneself on a video. The other two more crucial areas of metacognitive knowledge, that is, strategic knowledge and knowledge about cognitive task, seem to be moderately prevalent in pre-service teachers' reflections. This could be because our participants were engaged in a micro-teaching scenario for the first time. In other words, this was their first encounter with teaching, peer assessment, lecturer assessment and self-assessment in the teaching evaluation context. In addition, these pre-service teachers had limited training with the microteaching assessment criteria. Despite these limitations, a reasonable number of participants were able to reflect on strategic knowledge about teaching such as lesson planning, or knowledge about cognitive tasks such as acknowledging that certain styles of teaching would require more time and resources. This finding is encouraging because it shows that micro-teaching reflections have the potential to provide pre-service teachers the opportunity to evaluate their strengths and weaknesses, including higher-order metacognitive learning that includes strategic knowledge about teaching and knowledge about cognitive complexities of teaching. Furthermore, engaging pre-service teachers in reflections has the potential to enhance their evaluative and teaching skills. Seen from a social-cultural practice, reflective writing coupled with the lecturer and peer feedback, including video analysis, provides a good platform for teachers to engage in metacognitive learning.

Conclusion

In this research, we set out to explore how a small sample of pre-service mathematics teachers engaged in reflecting upon their own performance in an MT context. These participants were asked to use the video of their MT and the feedback provided by a peer and the course lecturer to write a reflection that focused on three aspects: usefulness of peer feedback, usefulness of lecturer feedback, and their own assessment of their teaching. In short, this study aimed to integrate different assessment techniques, such as peer assessment, lecturer assessment and self-assessment, in a micro-teaching setting. As anticipated, the findings of this study seem to suggest that providing the pre-service teachers with the opportunity to review and analyse their teaching is a useful way of engaging pre-service teachers in a novel form of assessment. Peer feedback appeared to have a positive impact on these pre-service teachers as it motivated them and helped them identify areas of improvement. Peer feedback also enabled the pre-service teachers to receive their peers' perspective on their teaching.

The pre-service teachers tended to be welcoming enough to accept the feedback provided to them from both their lecturer and peer assessor, whilst some of the pre-service teachers seemed to favour peer assessment due to peers often providing higher marks. On the other hand, a large number of participants

place a higher degree of trust in their lecturer in terms of the feedback provided. Hence, our participants found the lecturer feedback as more valuable and meaningful to them.

Furthermore, it could be reasonable to say that the use of video to reflect on their micro-teaching not only provided a platform for these pre-service teachers to recapture their micro-teaching and evaluate their teaching, but also enabled them to review the feedback received from the lecturer and peer assessor. The written reflections proved to be a helpful means of eliciting the pre-service teachers' views about their own teaching. Written reflections support pre-service teachers in engaging in metacognitive learning while reflecting on the situations of success and disappointment during their micro-teaching, enabling them to gather new meanings to different situations and to adapt and modify these new learnings to improve their own practice. Future research could include studying the quality and quantity of lecturer and peer feedback provided during an MT context, and how these sources of feedback could further enhance metacognitive learning for pre-service teachers.

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