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Peer feedback versus teacher educators feedback in peer teaching: Zimbabwean teacher educators and pre-service teachers' views

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ABSTRACT

The study focuses on peer and teacher educators' assessments in teacher education and the level of agreement between pre-service teachers' and teacher educators' assessments. The study employed a mixed-method approach using a lesson observation and assessment instrument and interviews to gather data. Seven conveniently sampled pre-service teachers and two teacher educators participated in this study. The findings showed statistically significant differences between pre-service teachers' and teacher educators' scores on ten items, and their scores were not statistically significant on five of the items. The pre-service teachers scored higher marks than the teacher educators. Their reasons for scoring higher marks were to maintain relationships and lack of content and pedagogical knowledge. Pre-service teachers need to know that peer teaching and assessment are meant for long-lasting learning instead of simply scoring marks.

Keywords: peer, peer teaching and assessment, pre-service teachers, teacher educators, peer feedback

INTRODUCTION

Discussions have been going on with regard to the insufficient incorporation of theory and practice in the school system and during teacher training (Addler, 2004). According to Darling-Hammond and Stykes (2003), teacher education and training programs in Sub-Saharan Africa, are blamed for under preparing teachers. In addition, in Sub-Saharan Africa, teacher education has been as well blamed for failing to provide sufficient opportunities for trainee teachers to acquire teaching skills in the settings of the actual classrooms, as a result, this limits its impact on classroom practice (Mulkeen, 2010). In Zimbabwe, Nziramasanga (1999) observed that patrons had doubts about the effectiveness and competence of school teachers in the education system. Mavhundutse (2012) and Nziramasanga (1999) reported that there were gaps between the skills that the teachers acquire during training and what was expected of them in the classroom. Teachers lack the prerequisite knowledge and expertise to efficiently execute their duties in the classroom (Mavhundutse, 2012).

Teacher education is viewed as the source of teachers' inability to incorporate theory and practice in the actual classroom setup as well as during training (Adu-Yeboah & Yaw Kwaah, 2018). This suggests that quality initial teacher training might lead to quality teacher beginners (Adu-Yeboah & Yaw Kwaah, 2018; Sen, 2010). Adu-Yeboah and Yaw Kwaah (2018) reported that practicum is vital to the pre-service teachers so that they would be in a position to put into practice in the classroom what they would have learned during training.

As a form of practical learning, the practicum is also known as work-based learning, learning from action, field-based learning, or learning by doing (Adu-Yeboah & Yaw Kwaah, 2018; Lonergran & Anderson, 1988). Practicum provides an opportunity for both pre-and in-service teachers to observe and work with the actual learners, teachers, and curriculum sceneries (Adu-Yeboah & Yaw Kwaah, 2018). As a result, practicum bridges the gap between theory and practice in learning to become a teacher. Practicum is a crucial component of initial teacher education programs because it provides pre-service teachers with an opportunity for applying the knowledge, skills and theories they had acquired during training to classroom situations (Adu-Yeboah & Yaw Kwaah, 2018; Akyeampong & Stephens, 2002).

It is important to prepare the teachers for practicum and one of the preparations is peer teaching. Peer teaching that provides an opportunity for pre-service teachers to practice the actual teaching and learn from their peers prepares teachers for teaching practicum (Manchishi & Mwanza, 2016). In Zimbabwe, Mashava and Chingombe (2013) recommended the need for intensive peer teaching before the deployment of trainee teachers in schools for practicum. Peer teaching is generally used in Zimbabwe in teacher training programs with the intention of introducing trainees to the practical facets of the teaching profession where they are exposed to instructional experience before going for teaching practicum.

Peer teaching helps the trainee teachers to put what they would have learned during training into practice. Peer teaching helps pre-service teachers in developing skills in the commencement of learning to teach: preparation of lesson plans, choosing teaching objectives and suitable teaching/learning materials, speaking in front of peers, time management, and applying appropriate assessment methods (Kilic, 2010). Trainee teachers develop skills in managing the classroom through constructive critiques from peers, lecturers and through self-reflection which augment their repertoire of pedagogical content knowledge required for the teaching career (Adu-Yeboah & Yaw Kwaah, 2018).

LITERATURE REVIEW

Peer Teaching as Observational Learning

Most peer teaching activities comprise observation, feedback and self-evaluation of trainees' teaching engagement (Adu-Yeboah & Yaw Kwaah, 2018; Parr et al., 2004). Observation is a process that involves a peer or teacher educator watching a trainee teacher teaching and then providing feedback afterwards (Hendry et al., 2014). The observation process involves completing a feedback form or a checklist and any form of feedback provided is envisioned to help the trainee teachers to improve their teaching skills (Hendry et al., 2014). Research has shown that trainee teachers can learn from merely watching and listening to a peer's teaching (Bell & Mladenovic, 2008; Hendry et al., 2014). Through observation and listening, trainee teachers can report on learning about new teaching approaches and feeling enthused to attempt these approaches in their teaching (Hendry & Oliver, 2012).

During peer teaching, learners would have an opportunity to look into their peers' work and monitor their existing learning performance. This allows learners to assess and make decisions through critical thinking as well as reflecting on their work, making it an opportunity for learning for the learners. According to Logan (2009), learners learn quite a lot from observing a variety of peers' teaching and they appreciate the value of comparing their own and peers' work. Learners are afforded opportunities to learn from both their mistakes and those of peers. Nonetheless, little is known about peers' experiences of learning through observation (Bandura, 1977, 1997; Hendry et al., 2014), particularly in a mathematics methodology course at the university under study. Therefore, this study intends to fill that gap.

Peer Feedback in Peer Teaching

Peer feedback can be considered an essential component of the peer teaching process (Chan, 2013; Omar et al., 2018), where they would interact, support and learn from each other during peer teaching (Topping, 2005). In this study, the pre-service teachers assumed the roles of both 'assessor' and 'assesse' that bear a resemblance to reciprocal peer teaching (Chan, 2013).

The bidirectional process of giving and receiving feedback may improve learners' learning as they learn from diverse illustrations and methods during peer teaching (Gielen et al., 2010). Pre-service teachers come from diverse academic capabilities and possibly they might have diverse views about peer teaching and feedback because of their previous experiences. As a result, the quality of peer feedback produced from the peers' assessors could be influenced by their domain knowledge (Patchan & Schunn, 2015). This could explain the worry about the accurateness of feedback generated by peers testified by several researchers (Falchikov, 2007; Hamer et al., 2015; Omar et al., 2018). The effectiveness of the feedback on the learners' learning depends on the peer assessors' capabilities to analytically connect their previous knowledge with the peer teaching activities (Liu & Carless, 2006; Omar et al., 2018). As emphasized in the literature, feedback has an essential role in the peer teaching process. As a result, teacher educators and peers must provide feedback to pre-service teachers. This might enable them to see the weaknesses and strengths of their teaching presentation and provide them with opportunities of developing themselves to attain the anticipated level (Basturk, 2016).

Despite the benefits associated with peer teaching and assessment, peers find it difficult to criticize their friends (Sluijsmans et al., 2002 in Kilic, 2016). Kilic (2016) reported that peers hesitated to score marks for their colleagues and were uncomfortable evaluating a colleague. Peers find it problematic to be objective and are not comfortable critiquing a colleague (Hanrahan & Isaacs, 2001 in Kilic, 2016). The bond of companionship, fellow feeling, or ill-feeling, peers' lenience in maintaining friendships, and not wanting to give rise to a conflict compromise validity and reliability of peer assessment (Kilic, 2016).

Comparing Educators and Peer Feedback

Hamer et al. (2015) compared peers' qualitative feedback with feedback written by tutors in an undergraduate software engineering programming class. The study showed that peers' feedback was of lower quality than feedback from the tutor and that the tutors wrote longer comments. The research concluded that the differences between the peers' and the tutors' feedback were not significant.

In an earlier study, Hamer et al. (2009) reported on three introductory programming classes that recorded grades and feedback comments from the pre-service teachers and tutors. The study compared quantitative marks awarded by students with those from the teacher educators. The findings suggest that feedback from students can be as good as or better than teacher educators' feedback.

In another study, Kilic (2016) implemented self-, peer-, and teacher-assessment in teacher education with the aim of finding out the level of agreement amongst pre-service teachers' self-, peer-, and teacher-assessments. The study used a quantitative research methodology. Pre-service teachers' teaching procedures included the use of teaching approaches that were assessed by teachers and peers. The findings showed that there were statistically significant differences amongst self-, peer-, and teacher-assessment scores. The peer-assessment of pre-service teachers had significantly higher scores as compared to teacher-assessment and self-assessment.

Izgar and Akturk (2018) employed a mixed-method approach to investigate the correlation between peer assessment and instructor assessment. The qualitative aspect of the study focuses on the pre-service teachers' positive and negative views about the peer assessment process. The findings showed that there was a positive and significant correlation between instructor assessment and peer assessment. Additionally, pre-service teachers were of the view that peer assessment contributes to learning, improved questioning and critical thinking, and development of fair assessment skills as well as becoming aware of imperfect knowledge. An examination of the pre-service teachers' views regarding assessments by their peers revealed that friendship relations and personal problems resulted in negative comments with peers scoring low marks. The mean peer scores were generally higher than teacher educator mean scores.

A lot has been written on peer and teacher educators' feedback and its impact on the teaching and learning process (Falchikov, 2007; Hamer et al., 2015; Izgar & Akturk, 2018; Kilic, 2016), research on more contextual studies is essential in order to gain an understanding of the comparison on pre-service teachers' and teacher educators' quantitative and qualitative feedback on peer teaching. Although Izgar and Akturk (2018) employed a mixed-method approach, their focus on qualitative was on the positive and negative views about the peer assessment process. The qualitative component of this study focuses on both the comments adjacent to the awarded marks and the reasons for scoring such marks. Therefore, the present study compares pre-service teachers' and teacher educators' quantitative and qualitative feedback on a mathematics methodology course in a university context. Specifically, this study answers the following question:

How do pre-service teachers' scores and comments compare to those of teacher educators?

METHODOLOGY

The study used both qualitative and quantitative methods, therefore, it was grounded on a mixed-method approach. According to Creswell (2015), mixed methods research involves the gathering of both quantitative and qualitative data using multiple data gathering methods in order to provide a complete set of answers to the research questions. With regard to this, the reason for gathering both qualitative and quantitative data in this study was to find out the differences and similarities between pre-service teachers' feedback and the teacher educators' feedback.

Participants

Convenience sampling used in this study is a method of selecting participants who are readily and easily accessible. The participants volunteered to take part in the study. The convenience sample consisted of seven female second-year diploma in science education pre-service teachers majoring in mathematics at a state university in Zimbabwe. The two mathematics teacher educators who were responsible for the mathematics methodology course also took part in the study.

Research Procedure

The pre-service teachers were enrolled in a mathematics methodology course that prepares them for practicum. The methodology course runs for 12 weeks covering aspects such as purposes of teaching mathematics, schemes of work and lesson planning, lesson introduction and development, teaching approaches, assessment and evaluation and peer teaching only to mention a few. Peer teaching is usually done during the last three weeks of the course after all the aspects required for teaching would have been covered. During peer teaching, one of the pre-service teachers was teaching, whilst, the other six were the learners, observers and assessors. Pre-service teachers had an opportunity to practice what they have learned in the methodology course as well as in content courses during peer teaching.

The objectives of the methodology course were clearly outlined to the pre-service teachers during the first lecture emphasizing that during the last three weeks of the course they will be involved in peer teaching. The pre-service teachers were required to select a concept to teach during that period from topics such as set theory, vectors, matrices, functions and their graphs, and linear programming. The benefits, as well as the disadvantages of peer teaching, were part of the methodology course. In the course, peer teaching benefits and disadvantages were learnt and some were experienced during the actual peer teaching sessions.

During the preparation stage for peer teaching, pre-service teachers were tasked to plan the lesson, write a lesson plan, arrange the teaching materials and then teach the peers. Soon after teaching the other components of the methodology course one pre-service teacher volunteered to start peer teaching on vectors so it became a norm that after each peer teaching lesson, pre-service teachers willingly undertake the following peer teaching session. This study focused on the first peer teaching session on vectors only for one pre-service teacher. Whilst the peer was teaching others, assumed the role of learners and evaluators/assessors during the peer teaching process.

During the actual peer teaching stage, the pre-service teachers were informed about the objectives of peer teaching and that no feedback from the peers would be used as coursework marks for the methodology course to circumvent the effect of friendship relationships. Each pre-service teacher was tasked to teach for 30 minutes. Prior to the actual peer teaching, the pre-service teachers were given a lesson observation and assessment instrument to assess their peers. For anonymity purposes, the pre-service teachers were not allowed to write names or identification numbers on the instruments. The pre-service teacher's assessment instruments were coded anonymously as P1, P2, P3, P4, P5, and P6 by the teacher educators named E1 and E2. The pre-service teachers were reminded to give fruitful feedback to avoid destructive comments. The quality of comments from the pre-service teachers was improved through modelling as suggested by Falchikov (2007). Before engaging in peer teaching, the teacher educators demonstrated to the pre-service teachers how to use the observation assessment instrument to improve the

reliability and accurateness of feedback and to attain the methodology course objectives. The instruments used were validated by the Zimbabwe Council of Higher Education (ZIMCHE), a body responsible for validating all programs and instruments developed and used in higher education including teacher training programs. Peer teaching and assessment were conducted in English, which was different from the participants' native language because English is the medium of instruction in Zimbabwe's education system.

Data Collection Instruments

The lesson observation and assessment instruments developed and tested as instruments for assessing trainee teachers on practicum at the university under study were used to evaluate the peer teaching experience of the pre-service teachers. The instruments consist of 25 statements on a 5-point Likert scale (0–no competence at all; 1–poor; 2–average; 3good; 4–excellent) and a section for comments for each statement and another section for the overall comment. This study used 15 statements that focused on lesson introduction (link to learners' knowledge and appropriateness), lesson development (questioning technique, communication, sequencing of content, and mastery of content), student learning (differentiation, level of participation, classroom interaction, and teaching strategies), media (suitability, effectiveness, and learner explorations) and lesson closure (feedback and explorations), as they were deemed essential for this particular peer teaching. The explorations are teacher guided inquiry and investigations through carefully designed questions. The ten statements that were not used in this study focused on schemes of work. The instrument gathered both qualitative and quantitative feedback from the teacher educators and the pre-service teachers. The instruments were administered before the beginning of the lesson. Lesson observation was done by the two mathematics educators and six pre-service teachers. Each instrument was coded by the researchers using codes such as P1 to P6 that correspond to each of the pre-service teachers to enable follow-up questions in interviews. Interviews were used as follow-up questions on the comments and the marks scored by the six pre-service teachers who did the lesson observations. This was done to gather their views on how they arrived at such comments.

Data Analysis

Data from the Likert scale were analyzed using statistical package for the social sciences (SPSS), investigating mean and standard deviations for each statement. In this study, only one pre-service teacher's presentation was used. Preliminary checks were carried out to make sure that the data met the assumption for the independent samples t-test that the sampling distribution must be normally distributed (Field, 2009). The data were tested for normality using probability-probability (P-P) plots, skewness and kurtosis and the data was normally distributed as the skewness and kurtosis values were less than one as recommended by Orcan (2020). An independent samples t-test was used to examine whether there was a difference between pre-service teachers' feedback and the teacher educators' feedback. The tests were two-tailed with the results considered statistically significant if the p-value was less than .05. The data from the interviews complemented the quantitative data.

FINDINGS

A Comparison of Teacher Educators' and Peers' Feedback

The study sought to find out how pre-service teachers' scores and comments compare to those of teacher educators who are experts in the mathematics subject and pedagogy. **Table 1** displays the quantitative feedback from the pre-service teachers and the teacher educators.

Lesson Introduction

An analysis of the results from **Table 1** showed that pre-service teachers' and teacher educators' assessment scores on lesson introduction, questions 1 and 2 there was a significant difference ($p=.002<.05$ and $p=.008<.05$, respectively). The mean score for the teacher educators were 1.0 for both items 1 and 2, while the pre-service teachers' mean scores were 2.85714 and 2.42857 for items 1 and 2, respectively, indicating that the pre-service teachers had higher scores than the teacher educators implying that pre-service teachers' scores and the teacher educators' were different.

The teacher educators' qualitative comments showed that the peer teacher failed to introduce the lesson. Teacher educators made the following comments:

> The lesson introduction was not appropriate for the introduction of vectors. The introduction did not show how the addition of matrices was linked to the vectors. No definition of a vector was given (E1).

> The way the lesson was introduced was not good at all. It was not appropriate for the introduction of vectors (E2).

The teacher educators' comments on lesson introduction were supported by four pre-service teachers' comments who indicated that the introduction was not good at all. Comments such as the following came from the pre-service teachers:

> The introduction was poor and was not good at all (P2).

> The recap was good for a start, however, there was no link with the topic that she was teaching (P3).

> There was no appropriate introduction for the learners. She simply asked questions, but then responded to the questions without even posing for the learners' responses (P5).

Table 1. Peers' and teacher educators' feedback

Item		N	Mean	Mean difference	T	p-value (2 tailed)
Introduction						
1. Link to learners' knowledge	Peer	7	2.85714	1.85714		.002
	Teacher educators	2	1.00000		5.461	
2. Appropriateness	Peer	7	2.42857	1.42857		.008
	Teacher educators	2	1.00000		3.873	.
Lesson development						
3. Questioning technique	Peer	7	2.00000	0.00000		1.000
	Teacher educators	2	2.00000			
4. Communication	Peer	7	2.42857	0.42857		.289
	Teacher educators	2	2.00000		1.162	
5. Sequencing of content	Peer	7	3.00000	2.00000		.001
	Teacher educators	2	1.00000		6.481	
6. Mastery of content	Peer	7	3.00000	2.00000		.000
	Teacher educators	2	1.00000		9.165	
Student learning						
7. Differentiation	Peer	7	2.57143	2.57143		.000
	Teacher educators	2	0.00000		6.971	
8. Level of participation	Peer	7	2.14290	1.14286		.030
	Teacher educators	2	1.00000		2.828	
9. Classroom interaction	Peer	7	2.85714	0.85714		.078
	Teacher educators	2	2.00000		2.121	
10. Teaching strategies	Peer	7	2.42857	0.42857		.356
	Teacher educators	2	2.00000		1.000	
Media						
11. Suitability	Peer	7	2.28571	0.28571		.457
	Teacher educators	2	2.00000		0.795	
12. Effectiveness	Peer	7	2.85714	0.85714		.017
	Teacher educators	2	2.00000		3.286	
13. Learner explorations	Peer	7	2.85714	1.85714		.000
	Teacher educators	2	1.00000		13.000	
Lesson closure						
14. Feedback	Peer	7	2.42857	2.42857		.002
	Teacher educators	2	0.00000		5.050	
15. Explorations	Peer	7	2.71439	2.71429		.001
	Teacher educators	2	0.00000		6.454	

> Her introduction as well, although it was not well linked to vectors (P6).

However, two pre-service teachers' comments on the lesson introduction showed that the introduction was good, which was contradicting the four pre-service teachers' and the educators' comments. Comments such as the following came from the pre-service teachers:

> She has been able to link with what learners know from the previous lesson. A good introduction (P1).

> The recap of the previous lesson started with the addition of matrices was good (P4).

Lesson Development

An examination of the findings in **Table 1** shows that the results of the t-test, applied to compare the pre-service teachers' scores and the teacher educators' scores on items 3 and 4 did not show any statistical difference ($p=1.000>.05$ and $p=.289>.05$, respectively). The mean scores of the pre-service teachers were 2 and 2.42857 for items 3 and 4, while the teacher educators' mean scores were 2.000 for both items. However, pre-service teachers' scores and teacher educators' scores on items 5 and 6 were statistically different ($p=.001<.05$ and $p=.000<.05$, respectively). The mean scores of the pre-service teachers were 3.000 for both items 5 and 6, while the teacher educators' mean scores were 1.000 for both items.

The qualitative comments from the teacher educators showed that the peer teacher failed to explain what a vector is using a diagram that she had drawn on the chalkboard. The teacher educators' comments were as follows:

> Although the peer teachers' sequencing of the vector concepts was good, her mastery of the content was not good at all as she failed to subtract vectors and was not very sure of what she was supposed to do (E1).

> Even though the peer teacher asked some questions during teaching, she never posed to get her colleagues' responses. Her communication was not all that good as she spent most of the time focusing on the chalkboard (E2).

Three pre-service teachers' comments on lesson development were positive on the sequencing of content and one had a positive comment on mastery of content. The following were their comments:

> Good sequencing of content (P1).
>
> The sequencing of content was good according to the given examples (P4).
>
> Content sequencing was good, but she should have started by introducing the properties of vectors such as direction, size and point of origin (P6).
>
> Content mastery was good (P5).

Two pre-service teachers' comments on lesson development were negative on questioning techniques and communication. The following were their comments:

> She has to improve on speaking with the learners and avoid concentrating on the chalkboard. P4 She asked some questions, but she was not able to communicate with the learners (P3).
>
> She could not explain herself such that learners themselves were not able to learn as expected. She should explain very clearly not talking to herself. As a learner, l could not understand what she was trying to teach (P2).

Student Learning

An analysis of the findings in **Table 1** reveals that the results of the t-test, applied to compare the pre-service teachers' scores and the teacher educators' scores on items 7 and 8 showed a statistical difference ($p=.000<.05$ and $p=.030<.05$, respectively). The mean scores of the pre-service teachers were 2.57143 and 2.1429, while the teacher educators' scores were 0.000 and 1.000 for items 7 and 8, respectively. However, on items 9 and 10, the pre-service teachers' and teacher educators' scores did not show any statistical difference ($p=.078>.05$ and $p=.356>.05$, respectively). The mean scores of the pre-service teachers were 2.85714 and 2.42857 for items 7 and 8 respectively, while the teacher educators' scores were 2.000 for both items.

The qualitative comments from the teacher educators showed that there was no form of learner differentiation, no participation, and the level of interaction was almost zero. The following are the teacher educators' comments:

> The peer teacher did not involve the peers during teaching, she was talking to the board without paying attention to the learners. No activities were given to the peers. Although she made use of the lecture method, this was not effective as she spent most of her time facing the chalkboard (E1).
>
> She needs to improve on interaction with the learners. Her teaching was purely teacher-centered without any learner involvement. When teaching she should ask questions to check whether learners' have grasped the concepts so that she continue or reteach the concepts that the learners would have not understood (E2).

In contradiction to the teacher educators' comments on peer interaction, three pre-service teachers' comments indicated that they were participating during the lesson. Comments such as the following came from the pre-service teachers:

> The peers were participating and there was classroom interaction between the peer teacher and the peers (P5).
>
> Peers were participating (P6).
>
> Good interaction with peers (P1).

On the other hand, four pre-service teachers were not satisfied with the teaching strategies that the peer teacher employed during the lesson. These were their comments:

> The peer teacher used a teacher-centered approach only. Learner-centered approaches could have been used to improve learners' understanding (P1).
>
> She should use different methods of teaching when delivering the lesson (P2).
>
> She used teacher-centered strategies only she did not ask any questions to the learners (P3).
>
> Teaching strategies were not varied, a teacher-centered approach was used (P5).

Media

An examination of the findings in **Table 1** reveals that the results of the t-test, applied to compare the pre-service teachers' scores and the teacher educators' scores on items 12 and 13 showed a statistical difference ($p=.017<.05$ and $p=.000<.05$, respectively). The mean scores of the pre-service teachers were 2.85714 for both items 12 and 13 while the teacher educators' scores were 2.000 and 1.000 for items 12 and 13, respectively. However, on item 11 the pre-service teachers' and teacher educators' scores did not show any statistical difference ($p=.457>.05$). The mean scores of the pre-service teachers were 2.28571 for item 11, while the teacher educators' scores were 2.000 or the same item.

The teacher educators' qualitative comments showed that the peer teacher made use of the chalkboard to illustrate concepts on vectors, although it was not used properly. These were their comments:

> The peer used the chalkboard as media, however, she kept focused on the chalkboard, making it difficult to interact with her peers (E1).

> Although the chalkboard was used as media, it was not used properly it failed to serve the purpose of media (E2).

The teacher educators' comments were supported by four pre-service teachers who felt that the peer teacher did not use the chalkboard effectively and should have considered other forms of media to enhance learning. Comments such as the following came from the pre-service teachers:

> Learners could not follow, she was talking to the chalkboard and not to her peers (P1).

> I could not see clearly what she wrote on the chalkboard, she should write clearly on the chalkboard (P2).

> She was explaining to herself, not asking questions and busy writing on the chalkboard (P3).

> The chalkboard was not used effectively and could have used other forms of media (P6).

On the other hand, two pre-service teachers made positive comments on how the media was used during the lesson. These were their comments:

> Good, clear demonstration on the chalkboard, learner explorations were good (P4).

> She managed to make use of the chalkboard whilst making illustrations on vectors for learners to understand (P5).

Lesson Closure

An analysis of the results from **Table 1** showed that pre-service teachers and teacher educators' scores on lesson closure, items 14 and 15 there was a significant difference ($p=.002<.05$ and $p=.001<.05$, respectively). The mean score for the teacher educators was 0.000 for both items 14 and 15, while the pre-service teachers' mean scores were 2.42857and 2.71439 for items 14 and 15, respectively, indicating that the pre-service had higher mean scores than the teacher educators implying that pre-service teachers' scores and the teacher educators' were different.

The teacher educators' qualitative comments showed that the peer teacher was not able to conclude the lesson. The following were their comments:

> The peer teacher failed to conclude the lesson (E1).

> The lesson was not concluded, in fact, there was no lesson closure (E2).

Four pre-service teachers indicated that the peer teacher failed to conclude the lesson. Comments such as the following came from the pre-service teachers:

> The peer teacher did not conclude the lesson (P1).

> There was no lesson conclusion. She must improve on that in order to develop learners' understanding (P3).

> Should improve on lesson closure. She should have asked questions about the lesson taught (P6).

> She was not able to conclude the lesson (P5).

Although there was evidence that the peer teacher failed to conclude the lesson, two pre-service teachers reported that the lesson closure was good. The following were their comments:

> It was good (P2).

> A good lesson conclusion (P4).

Pre-Service Teachers' Reasons for Scoring High Marks

It was worth to make a follow-up through interviews with the participants to find out the possible sources of these differences. The pre-service teachers' reasons for scoring high marks were considered under two themes.

Scoring high marks to maintain relationships

One of the reasons for scoring high marks by peers was to maintain their relationships as they did not want to end up breaking their relationships. Relationships were built on economic, social and academic backgrounds since they were enrolled at the university. Pre-service teachers felt that it was difficult to assess their colleagues. Pre-service teachers made the following remarks:

> Evaluating a colleague is difficulty to the extent that you end up awarding marks that she did not deserve (P5).
>
> I simply made good comments for fear of victimization, to avoid conflicts and make my colleague happy. Sometimes our relationships are important since we are a small group and we tend to share almost everything, socially, economically and academically, l don't want to affect our relationships negatively (P4).
>
> If a colleague finds out that you scored a lower mark, this will negatively affect our relationship. So it is better to score a high mark, then comment correctly that is negative (P1).

Scoring high marks due to lack of knowledge

Some of the pre-service teachers indicated that they scored high marks because they lacked knowledge of vectors and pedagogical skills. This is what they said:

> I awarded such marks because of lack of knowledge on vectors, l did not know whether what she was doing was correct or not (P6).
>
> Sometimes we do not know what is correct. She was also learning how to teach and we were also learning how to assess a colleague, so l just awarded marks (P3).
>
> It was about not knowing what an introduction was supposed to be, so I was just awarding marks. I thought if anything is said at the start of a lesson then it is a way of introducing the lesson without considering whether it's relevant to what is being taught or not (P4).

DISCUSSION

The quantitative findings showed that ten of the items from the instrument showed a statistically significant difference between teacher educators' scores and the pre-service teachers' scores. The findings are in line with Izgar and Akturk (2018), whose study showed a statistically significant difference in favour of peers amongst the instructors' scores and peers' scores. On the other hand, the quantitative data showed that there was no statistical difference between the teacher educators' scores and the pre-service teachers' scores on five items. The level of agreement from the quantitative data between teacher educators' scores and pre-service teachers' scores was 33.3% from the five items, whilst they disagreed on 62.7% from the 10 items. The implication is that 62.7% of the pre-service teachers scored higher marks than those scored by the teacher educators. In a study conducted by Izgar and Akturk (2018), which supports the findings of this study, it was noted that the level of agreement between instructors and peers was 31% and the authors concluded that 62% of the peers scored high marks. The finding that the pre-service teachers' scores were, generally, higher than the teacher educators' marks is consistent with the findings described in the literature (Izgar & Akturk, 2018; Kilic, 2016). The qualitative comments from the pre-service teachers showed some contradiction in the quantitative high marks. In most cases, for example, in the introduction section, the comments were negative, but the marks awarded were very high. The implication is that the pre-service teachers were able to make a distinction between good works from insufficient ones, despite awarding very high marks. The finding is in line with Izgar and Akturk (2018), who reported that the pre-service teachers had the ability to differentiate work that was good from that which was not.

One of the reasons for high scores by pre-service was mainly to maintain relationships. Peers did not want to end up in conflict because they would have scored low marks. In a study conducted by Kilic (2016) that supports the findings of this study, peers score high marks in order to maintain friendships and avoid conflicts, hence, they end up compromising the validity and reliability of peer assessment. In addition, peers believe that peer assessment procedures are socially inconvenient (Kilic, 2016). Another reason for scoring high marks by pre-service teachers was a lack of knowledge of both the content and lesson delivery. Although the pre-service teachers were familiar with the assessment instruments that they were using, they indicated a lack of knowledge of content and lesson delivery. The peers' lack of content knowledge on vectors made them score high marks even though the peer teacher failed to deliver the content correctly. The study revealed that the pre-service teachers showed some gaps in their vector content knowledge. In order for pre-service teachers to be able to assess their colleagues, they need to be knowledgeable about content knowledge and pedagogical knowledge.

The use of an instrument that gathered both qualitative and quantitative feedback in this study had the advantage of revealing that some pre-service teachers did not make fair assessments as they prioritized relationships and friendships and they tolerated one another, therefore such assessments did not contribute meaningfully to learning. The finding concurs with Izgar and Akturk (2018). Such a scenario might imply that the pre-service teachers concentrated on the grades given instead of learning in the assessment-based teaching. In addition, peers are more accountable for their learning and performance if they are given quantitative scores supported by the qualitative comments. With regard to the methodology, the findings from the qualitative comments were very valuable for authenticating the quantitative scores of the instrument as well as identifying possible areas to improve, unlike when qualitative or quantitative was used alone. The use of qualitative feedback is affected by the peers' proficiency in the English language, which limits their ability to express their judgments qualitatively (Omar et al., 2018). In mathematics courses writing is regarded as a demanding task in the facets of language skills as well as mathematical knowledge that might result in some peers scoring marks without commenting (Omar et al., 2018). In this study, the pre-service teachers made some positive qualitative comments which disagree with the finding by Omar et al. (2018).

CONCLUSION

Peer teaching and assessment are of great importance for pre-service teachers because this might result in developing the skills of critical thinking, problem-solving and self-regulating (Kilic, 2016). The practical involvement of pre-service teachers in assessing peers' performances is important, particularly in teacher development (Kilic, 2016). In this study pre-service teachers' and teacher educators' assessments agreed only on 33.3% of the five items, whilst they disagreed on 62.7% of the items. The pre-service teachers' marks on 62.7% of the items were generally high. It is worth mentioning that some pre-service teachers scored high marks to maintain relationships. The researchers suggested that peers need to be educated on the fact that peer teaching and assessment are implemented to take care of long-lasting learning instead of just awarding marks. The researchers recommended that studies be carried out that aim at reducing the challenges experienced during the implementation of peer teaching and assessment. This study involved a small sample size with data gathered from pre-service teachers at one university in Zimbabwe. As a result, the findings of the study cannot be generalized to other situations.

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