

The effects of peer feedback, within an 'assessment as learning' approach, on the learning and development of student-teachers

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Abstract

This paper describes a study that examined the effects of peer feedback on the learning and development of a group of eighty-one second-year undergraduate post-primary student-teachers on a four-year concurrent initial teacher education (ITE) course, studying a compulsory education module. The students were asked to complete a component of their assessed coursework from this module by engaging in a peer review process. This study investigated the student-teachers experiences and attitudes towards peer feedback and explored the benefits to the students of both giving and receiving feedback from their peers.

Peer feedback was found to be a useful and beneficial addition to the college's ITE programme. It provided an opportunity for the student-teacher to receive quality feedback, which was relevant to them, which they could usefully draw on to improve their work in a timely manner, and help them to develop their capacity and skills in providing feedback to others.

Keywords

Peer feedback; peer review; feed-forward; assessment as learning; student-teachers.

Introduction

This research was carried out at a university-level college in Ireland, which provides a full range of higher education courses with a particular focus on primary level initial teacher education (ITE) and teacher professional education. In recent years this college has seen a considerable expansion of its campus infrastructure and provision of courses; for example, St. Patrick's College was incorporated into the university in 2016, which led to the inclusion of post-primary level ITE and postgraduate programmes. This particular college had a strong historical culture in providing a personalised educational experience for their student-teachers, and it is in the St. Patrick's Campus that this research was carried out. A characteristic of the student-teachers' experience in previous years, within this college, was the approachability of lecturing staff and the provision of advice and individual feedback to students; for example, on the completion of each coursework assignment the students were individually invited to receive their coursework grades and to discuss specific feedback from their lecturer on a one-to-one basis.

As a consequence of this recent expansion there has been a considerable growth in the numbers of students, which has resulted in many lecturers now finding it difficult to provide the same quality of feedback to their students that might have been provided previously. The academic staff are very cognisant of the benefits of personal contact with the student-teachers, and are concerned that a reduction in personalised feedback will have a negative impact on their students' learning.

This research addresses the above concerns and the potential shortfall in providing feedback to the student-teachers by exploring the practice of peer feedback. Consequently, the aims of this research

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study are to investigate the student-teachers experiences and attitudes towards peer reviews and to explore the benefits to the students in both giving and receiving feedback from their peers.

Literature Review

Feedback is recognised as being a central component in the process of learning (Boud, 2007; Hattie, 2012; Sambell et al., 2013). Yet feedback in higher education is recognised as being an area that is consistently dealt with unsatisfactorily (Nicol, Thomson and Breslin, 2014). Undergraduates in higher education frequently comment on the poor quality and in-effectiveness of the feedback they receive (Higgins, Hartley and Skelton, 2002; McDowell et al., 2008). Higher education staff have tried increasingly to respond to these comments by attempting to improve the clarity, structure and relevance of the feedback they provide to students (Boud, 2007); although, interestingly the literature shows that such efforts do not necessarily improve the students' learning (Crisp, 2007; Wingate, 2010). In addition, providing quality feedback to the students increases significantly the workload on academic staff, and coupled with the rising student numbers in higher education, educators in higher education are exploring alternative methods of providing feedback to their students.

Researchers in education have been quick to recognise the potential that technology presents in providing students with feedback (Dann and Allen, 2015; Seifert and Feliks, 2018), as they re-examine how the provision of quality feedback can be conceptualised and applied in a higher education setting; for example, technology can be used to encourage a social constructivist approach, which can facilitate moving from a transmission feedback approach to a practice of collaborative dialogue. Many researchers recognise the value of moving feedback from a monologue process to one that recognises the students' role, and the benefits of a participatory dialogue (Nicol, 2010). A collaborative dialogue can help to enable the students to construct their own meaning as they analyse and evaluate their feedback (Nicol, 2010; Price, Handley and Miller, 2011). The students' analysis and evaluation does not necessarily need to have the teacher acting as a central conduit and arbiter, and educators in higher education are increasingly looking at the value of adopting a peer review process (Cartney, 2010; Nicol, 2011).

'Peer review' in this context is a process where students analyse and evaluate the work of their peers and provide and share feedback information with each other. This results in the students' learning being enhanced through both giving and receiving peer feedback reviews (Nicol, Thomas and Breslin, 2014). The literature reveals how students believe the feedback they receive from each other is often easier to understand and more helpful than the feedback they receive from their teachers (Falchikov, 2005; Topping, 1998). Peer feedback obtained from groups of peers has been found to be of even more benefit (Topping, 1998). The quantity and variety of information provided for students from multiple peer review conversations is greatly enhanced (Cho and MacArthur, 2010), providing a greater chance of the student receiving the quality feedback they need, which is relevant to them, and which they can usefully draw on to improve their work.

Choosing the time when feedback is given to students is a key consideration, as it can significantly influence the learning process. Feedback given at the end of a unit of work, or after work has been submitted for an assessment, is frequently criticised by higher education students as being unsatisfactory, because it does not arrive at a beneficial time when students would be able to act on it (Higgins, Hartley and Skelton, 2002; McDowell et al., 2008). However, the nature of the feedback given in a peer review process might more accurately be described as 'feed-forward', as it is given prior to the students' submission of an assessment task (Sadler, 2010). The practice of feed-forward fits within the 'assessment for learning' model (Black, Harrison, and Lee, 2003) as it is used by the student to modify and improve their work, prior to it being assessed (Ramsden, 1992). The timing of 'feed-forward' enables a change in emphasis from feedback, where the student is largely a passive receiver, to one where the student is encouraged to engage in active learning which is influenced by

the information they receive. Nicol, Thomson and Breslin (2013) describe how students can also benefit from the peer-review process, as the consideration and formation of feedback for other students provides a valuable addition to the learning process. As the students provide and receive 'feed-forward' information, to and from their peers, they become engaged in a process of peer and self-evaluation within a model of formative assessment (Carless and Boud, 2018) that might be more appropriately described as 'assessment as learning' (Earl and Manitoba School Programs Division, 2006). Nicol and Macfarlane-Dick (2004) describe how such assessment practices should be a central part of teaching and learning and integrated into curricular practices.

The quality of feedback is something that is difficult to quantify (Sadler, 2010). The feedback that is received by the students needs to provide information that they can use to improve and develop their work. When a student's work is evaluated by a teacher, the quality of the feedback is achieved through a process of holistic appraisal of the qualities of the work (Sadler, 2010), combined with a knowledge of the subject and an experience of the standards that are expected (Kaplan, 1964), coupled with an understanding and appreciation of the student's potential. In order for students to provide quality feedback to each other they need to experience making judgements across a spectrum of abilities and create rationales that outline how improvements could be made (Sadler, 2010) that fit within the recipients zone of proximal development (Vygotsky, 1978).

Receiving feedback, particularly from peers, can result in an anxious and stressful experience for students (Boodt, 2014). Some students may experience a fear of being judged and criticised, and worry that the feedback they receive may become disseminated to others (Copland, 2010). This can result in an unwillingness to engage in critical and honest feedback (Dweck, 2011), to the extent that students might decide to generalise and avoid an in-depth critique of another student in the hope and understanding that they are treated equally leniently. Hayes (2003) describes how the anxieties, feelings and emotions of student-teachers can affect their ability to function effectively, and how their feelings can either motivate or create barriers. Ferguson (2011) reports that student-teachers prefer to receive written rather than oral feedback as this provides a less stressful experience. Consequently, care in structuring and supporting peer feedback activities should be considered (Boodt, 2014), so that the students view the activity as a welcome challenge and an opportunity to learn, instead of a source of stress and potential embarrassment (Weare, 2004). The student-teachers motivation to engage in peer feedback should be driven by their need to value and appreciate the feedback experience and recognition that they are acquiring and developing an important teaching skill (Dweck, 2011).

It is recognised that student-teachers studying ITE programmes receive additional information on the feedback process to students on other higher education programmes (Headington, 2018). Student-teachers' academic programmes involve the theory and practice of teaching through professional and educational studies. Headington (2018) explains how student-teachers learn about the theory of assessment and feedback, and for example, how they are able to appreciate and see the effects of applying this theoretical knowledge in practical settings on their school placement teaching practices. This experience enables the students-teachers to appreciate the importance of providing effective and appropriate feedback that supports, challenges and develops the pupils' learning (Black, Harrison and Lee, 2003). Consequently, the student-teachers application of assessment and feedback practices during their course provides the student-teacher with a particular perspective that sets them apart from other higher education students (Headington, 2018). It is within this context that this research has been conducted.

Methodology

In compliance with current regulations, ethical clearance was applied for and granted from the college's research Ethics Committee (reference A18-033).

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This study draws upon the work of a cohort of eighty-one second-year undergraduate post-primary student-teachers on a four-year concurrent ITE course, studying a compulsory education module. The students were asked to complete a component of their assessed coursework from this module by engaging in a peer review process. This coursework component involved the students producing a short 'scheme of work' covering four lessons, accompanied with four detailed lesson plans that could be used by the students in a forthcoming school placement teaching practice. The module lecturers arranged for all the student-teachers to meet together, en masse, face-to-face, seven days before the deadline for the assignment and facilitated the exchange of the students' assignments with their peers. The full cohort of students attended this meeting. The students were asked to bring one example draft lesson plan from the four that they planned to submit for their coursework assessment to this meeting. During the meeting the students were placed in groups of five, according to the subject they had chosen for their lesson plan, and seated in a circular arrangement. The students were asked to pass their example lesson plan to the person sitting on one side of them. The lecturers asked the students to attach a blank A4 sheet to the lesson plan from the other students and to write their feedback on this sheet, whilst making reference to a given list of criteria. This reference criteria were itemised in a bullet point format, based on the assessment criteria used by the lecturer in marking this assignment. At the end of the hour long meeting, each student-teacher was given back their original lesson plan, with the attached feedback sheets containing a minimum of four peer reviews. It was explained that they had a further seven days to read and reflect on their peers' feedback, combine it with their own reflections after having seen and assessed the work of their peers, and make adjustments to improve their work, before submitting their full assignment into the faculty.

On conclusion of this process, the student-teachers were asked to critically reflect on their experience and the lessons they had learnt from their peer review participation and submit a short reflective essay of seven hundred words. This reflection was also a component of the module's coursework assessment.

An anonymous, hard copy, cross-sectional questionnaire, providing quantitative data, was chosen to determine the student-teachers' initial, collective reaction to their individual experience of the peer review process. The purpose of the questionnaire was to identify attitudes and expectations towards peer feedback, and to determine the student-teachers understanding of the role of student feedback in the assessment process. The questionnaire was distributed to each student-teacher in the week after they had completed their peer-review. Twelve of the questions were of the fixed-response type, where the students selected their responses from a five-fold Likert scale of options. A further three questions were open-ended to encourage written comments on various aspects of their experience. Fifty-three students from the cohort of eighty-one completed the questionnaire (65.4%). The subsequent written reflections provided by all eighty-one student-teachers provided qualitative data, that was cross-referenced with the quantitative data from the questionnaire, and helped to clarify the student-teachers' understanding and learning from the peer review exercise. The qualitative data was evaluated using a modified grounded theory method (Glaser and Strauss, 1967). This approach used systematic steps of identifying key points, followed by a 'constant comparative analysis' (Merriam, 1998) in order to identify patterns, with a view to presenting an accurate reflection of the student-teachers' views.

Questionnaire Results

The results from the questionnaire revealed that a high percentage of the students (90%), that responded, were positive about their experience of peer review. The students were asked if receiving peer feedback was helpful and/or motivating. The students that completed the questionnaire mostly 'totally agreed' (53%) and many 'partially agreed' (36%). The students were asked in the questionnaire to identify which aspects of the peer-review they found positive. The most common responses from the students were 'receiving useful and helpful feedback from their peers', 'learning from and seeing

the work of others', 'having the opportunity to correct mistakes and improve the quality of my work', 'helping other students to improve' and 'valuable use of time'. The students were also asked to identify which aspects of peer assessment they found to be unhelpful, and common responses were 'other students were not always critical enough', 'quality of feedback received varied a lot' and 'no experience of having done this before'.

Nearly all the students that responded felt comfortable assessing their peers' work (96%), with the majority (85%) feeling that they had the necessary skills to participate in the peer review process. Although most respondents trusted the feedback they received from their peers (88%), more than half (51%) found it difficult to assess their peers, and most recognised the increased sense of responsibility (89%) inherent in peer assessment.

Most students who completed the questionnaire recognised the benefit of peer reviews (94%), how they helped students to identify and detect their own mistakes and learn from the comments made by their peers. The open-ended survey questions revealed how the students recognised that they were able to develop and improve their work from seeing the examples of others, and how they were able to reach a broader and deeper understanding of the assessed task, allowing them to gain ideas and consider things that they had missed or over looked, but had been picked up by other students. Many commented how they grew in confidence and felt much more comfortable in submitting their work for assessment after seeing the work of others.

The majority of students that completed the questionnaire (98%) also recognised how the experience of engaging in peer reviews could provide them with a skill that they could use in school, although a significant number of these students (44%) valued the feedback from their tutor more highly than the feedback they received from their peers.

Student-Teacher Reflections

The reflective essays from the full cohort of eighty-one student-teachers provided a large amount of qualitative data. The students' reflections revealed that they were generally very positive about their experience of peer assessment. A sample of the student-teachers' comments on the practice of peer assessment included:

Peer assessment helped me to develop my communication and critical thinking skills to a higher practical level than I had reached before.

The experience highlighted for me the responsibility that a teacher has in marking the work of others.

I didn't realise how important it is to have a clear set of criteria before you can mark other people's work. It was the first time that I had been shown how to mark the work of someone else, skills I will use as a teacher on school placement.

It made me realise that it is no use just giving general feedback, like 'good' or 'well done', because it doesn't help anyone learn; the feedback needs to be really specific.

A representative sample of the student-teachers' comments on the benefits of peer assessment to their own development and learning included:

Each of the four people that gave me feedback raised completely different points and each one triggered a different response.

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I was able to cross-reference my own work with what I saw in the other students' assignments and could see the gaps I had missed.

I learnt more in that hour working with others than I might have done all week working on my own.

By the end of the peer reviews I had really improved my understanding. I felt I had acquired the knowledge of an expert and had a much clearer idea of how to produce a good assignment.

Some of the student-teachers had concerns about peer assessment. A sample of these concerns are shown here:

I was hesitant in being too critical of the other students. As it wasn't completely anonymous, you could work out who had left what feedback.

I didn't like giving any negative feedback, and tried to make sure that I concentrated on mentioning only the positive things.

I am not sure I always trusted the feedback from my peers, to the same extent as I would trust the feedback from one of the lecturers.

Discussion of Findings

A lot of the literature on student feedback in higher education reveals how students generally feel anxious and experience a tension around receiving feedback from higher education staff (Boodt, 2014; Brandt, 2008; Copland, 2010; Ferguson, 2011). Although, the students in this particular study appeared anxious and unsure about peer feedback at the start of the peer review session, they did not show any anxiety whilst they were engaged in the feedback process, or subsequently when they reflected back on their experience. Anxiety and tension was reduced in this study for a number of reasons. Firstly, the students didn't give the feedback directly to their peers, but passed it through written notes attached to part of the assignment. Ferguson (2011) found that student-teachers prefer to receive written rather than oral feedback, and this was supported by the findings on this study. Although, the name of the person communicating the feedback was not included on the feedback sheets, it was usually possible for the students to work out who had provided feedback to them. The students felt comfortable giving feedback to others without having to do so in direct face-to-face communication. Secondly, the student-teachers were asked to provide critical feedback that was positive, supportive and helpful, with a view to highlighting deficiencies or problems in the work presented, which could lead to opportunities for the students to improve their work, before it was officially marked. Consequently, the feedback was viewed by the students as a welcome and fortuitous step in preparing their work for formal assessment. Thirdly, Copland (2010) found that the element of assessment, when linked to feedback, causes tension between the student and lecturer. In this study the students assessed each others work, with reference to assessment criteria, but they had the choice to either accept or reject the feedback they were given. They were not under any obligation to act on or accept this feedback, and the feedback they received was not linked to any grade or assessment score. Fourthly, it was explained to the student-teachers that this exercise provided an important step in their own education in developing their capacity and skills in assessing, marking and providing feedback to others. The questionnaire revealed that 98% of respondents saw how useful the skills they were acquiring were for working in school. Engaging in a peer review process helped the students to appreciate the importance and relevance of their experience and recognise that it benefited their development as a teacher.

Significantly, 88% of those responding in the questionnaire trusted the feedback they received from their peers, and a further 94% recognised the benefits of the peer review process. Carless and Boyd (2018) describe how the peer review process can help the students to self-evaluate more effectively as they make accurate comparisons between their work and that of the other students. The students described how the feedback they received helped them to identify aspects of their work that needed to be modified and improved, although, some of the students commented that 'the quality of the feedback they received varied a lot.' This suggests that the students questioned the value of some of the feedback they received, which might have led to broader dissatisfaction amongst the students, although the effects of this were reduced by receiving feedback from at least four other students. This perceived variance in the quality of the feedback was perhaps affected by the lack of experience by the students of working on peer reviews and providing feedback to others. Sadler (2010) described how students need to experience making judgements of students of varying ability, have access to exemplar materials and have opportunities to engage in dialogue with both students and lecturers to build an understanding of the quality that is sought. Sadler (2010) believed this can lead to the students providing feedback that aims to raise their peers' work to a particular level, and help them to develop a sense of what is good quality work. Although, 85% of the student respondents in the questionnaire felt they had the necessary skills to engage in peer review practices, Sadler's (2010) suggestions would help to provide feedback that is based on a higher-level standard of work, rather than on one that provides feedback grounded on the students' own ability levels or understanding of quality.

The timing of the feedback that the students received provided them with a week to make additions and modifications to their work, before submitting it formally. Nicol, Thomson and Breslin (2013) described the motivating factors of peer feedback, and this was supported by 89% of the respondents to the questionnaire on this study, who found the peer review exercise to be a helpful and motivating experience. Nicol and Macfarlane-Dick (2004) described the importance of including peer feedback, and students from this study prized the opportunity 'to improve the quality of their work' and they felt it was 'a valuable use of time'. The students commented that they not only benefitted from receiving feedback from other students, but that they also learnt from being able to view the work of others, and were able to get ideas and synthesise the work of those students that they provided feedback to, into their own assignment (Carless and Boud, 2018). The formation of their modified work, after the feedback reviews, provided rich opportunities for self-evaluation and development through the 'assessment as learning' approach.

Review

This research study aimed to investigate the student-teachers experiences and attitudes towards peer feedback and to explore the benefits to the students of both giving and receiving feedback from their peers. Initially, many students were concerned about sharing their assignment work with other students, that others would 'copy their good ideas' or that the process could result in the 'blind leading the blind'. The reflective writings of the students revealed that these concerns were not substantiated by their experience of receiving peer feedback. In this section, the findings from the preceding sections are discussed with reference to the research aims, and a number of points emerge.

Firstly, the results outlined above suggest that the student-teachers benefitted as much from giving feedback as they did from receiving it. Critically reviewing their peers' assignments helped them to reflect and develop their own thoughts and ideas, which they needed to communicate as written feedback to the other students. They began to understand the responsibility and the sensibilities required in the process of providing feedback to others and to appreciate the care and accuracy that was required in giving written comments. This process of thinking about what comments to write and providing supportive and critical feedback to other students, helped them to think and engage at a deeper level and reach a better understanding of the material being reviewed.

Secondly, many students recognised and appreciated that peer reviews had helped them to develop skills that would be useful in their future teaching careers. Their engagement in the process of peer feedback provided an enhanced awareness of how to communicate effective feedback, and provided them with a greater sensitivity around the provision of appropriate feedback to others. In addition, by giving feedback to their peers, they developed a deeper engagement and understanding of the course material covered in the assignment, which helped to promote their critical thinking skills. These skills, as well as being useful in their future teaching career, might also help them to make better objective judgements about their own work on future course assignments.

Thirdly, the lecturers gave the students a set of assessment criteria to use and reference when providing feedback to their peers, although some students mentioned that they felt this did not equip them sufficiently to provide accurate and helpful feedback. Some students also mentioned that it would have been helpful if they had received practice and guidance on how to provide effective feedback before the peer review activity. In the absence of such practice and guidance, the students used the assessment criteria and comparisons with their own work. This resulted in the students cross-referencing the lecturers' formal assignment criteria with their own informal criteria, gained from their experience of having actually completed the assignment. The resulting assessment criteria that was practically applied by the students presents an interesting area to examine in future presentations of this module.

Fourthly, the majority of the students' attitudes towards peer feedback were very positive. They felt that the process provided a practical and rich learning experience, which led to the development of key teaching skills, and that their assignments were enhanced as a result. Although the feedback that the students received from their peers was different to the feedback they would have received from their lecturers, the feedback required from the lecturers on this particular assignment was significantly reduced. Future work needs to be carried out to identify times during the course when feedback could appropriately be given by the students and times when it should be given by the lecturers.

Conclusion

The intention at the outset of this project was to try and compensate for a perceived loss in feedback given by lecturers to the students, due to increased student numbers. This research presents evidence that instead of replacing a loss of feedback that the process of peer feedback adds a new dimension to the feedback that is provided. The findings highlight that it should be integrated into the ITE programme in addition to the feedback students receive from their lecturers.

The students were positive about their peer review experience, and felt motivated to engage in peer feedback for a number of reasons. A beneficial outcome of this project was that the student-teachers were able to enhance their practice and capability, and experience how to formulate feedback to support the development, motivation and progress of others. The student-teachers were able to evolve, in a practical application, an important skill that they will need during their future teaching careers.

The students' anxieties around providing feedback to their peers was lessened due to the students positive motivation towards providing feedback, and the appropriate framing of this activity, which provided a comfortable and safe experience for the students. Other factors that helped to provide a safe environment were the use of a written format for the feedback that was positive and supportive, and removing the element of assessment in the feedback.

During future presentations of this course, it is intended that students will be given increased guidance in providing critical and supportive feedback to others. This will be provided during the module's

tutorials where the students will get a chance to build on the work of Sadler (2010) and discuss the issue of quality, review exemplar material, and come to an understanding of the level of quality that students should be aspiring towards. A number of developments are being considered on other modules within the ITE programme such as: introducing an element where students provide oral feedback to their peers; the introduction of group feedback sessions, where teams of students collectively examine and discuss student assignments; utilising the facilities of online forums to support the development of student capacities in providing feedback (Headington, 2018).

This exploratory investigation of the effects of peer feedback, through an 'assessment as learning' approach, on the learning and development of student-teachers, for this college is just beginning!

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