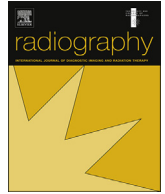




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Diagnostic radiography students' perceptions of formative peer assessment within a radiographic technique module

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ABSTRACT

Introduction: Assessment is a central part of student learning. Student involvement in peer assessment leads to significant improvement in students' performance, supports students' learning, promotes the development of evaluation skills and encourages reflection.

Aim: The aim of this study is to assess perceptions of the Formative Peer Assessment (FPA) initiative within a higher education setting for undergraduate radiography students.

Methods: Qualitative action research was conducted. Students were allowed to anonymously assess each other's assignments using a standardized evaluation sheet that they had been trained to use. Participants' perceptions were assessed through focus group discussion.

Results: The findings showed that students' experiences with peer assessment were positive. Students acknowledged that they received valuable feedback and learned from assessing their peers. Students recommended the need for training and suggested using more than one evaluator.

Conclusion: The FPA initiative in the study institution believed to be succeed as the students had a positive experience with the FPA. Students learnt from PA and from self-assessment. Implementation of PA will promote reflection and critical thinking and problem solving skills, that are important traits in radiography graduate profile as in radiography clinical practice the professional require to modify imaging techniques and critique images to ensure the quality of care.

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Introduction

Assessment is a central part of the learning process, it motivates students and directs their learning towards important learning outcomes.^{1,2} Educationists classify assessment as either summative or formative. Summative assessment is reflective and occurs at the end of the course to judge and certify a student's learning achievement,³ while formative assessment is diagnostic and occurs throughout the module to help monitor and improve learning throughout the study period.^{4–8}

It is thought that purely summative assessment doesn't help the student to plan their study, and pure formative assessment is not taken seriously.⁹ Although teachers usually assess their students, it is also recognized that students can assess each other as peers.

PA is defined as a process used to consider the quality of a peer's work or performance, judge the extent to which the work or performance reflects goals or outcomes, and make suggestions for revision.¹⁰ PA involves the use of learners of the same academic level in the process of determining the quality, worth, or level of successfulness of the outcomes or products of learning.^{11,12} Peers should exercise no formal authority over each others and share the same hierarchic status.^{13,14}

The mutual process of PA has a positive impact on student learning,^{15,16} it engages students in learning; examine themselves and comment on each other's work.^{17–20} Moreover, PA motivates students to perform better through encouragement of critical thinking skills, self-awareness and confidence.^{21–24} Concurrently, student involvement in PA supports students' learning, promotes the development of evaluation skills^{25,26} and reflection on learning.^{27,28} For faculty members, PA reduces marking workload,^{29,30} permits less but better assesment.^{24,31} Thus, Topping concludes that PA offers advantages to the faculty member and student.³¹

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Generally, PA used as a formative assessment rather than summative. It is reported that students do not prefer PA as a summative exercise.³² For successful implementation, an alignment of learning outcomes with teaching content and assessment tasks should be present. Finn and Garner recommend 12 tips for implementing successful PA,³³ other authors emphasize the presence of well-defined roles for both instructors and students for successful implementation,^{34,35} and recommend the use of evaluation rubrics to ensure consistent feedback.³⁶ Nevertheless, students' support throughout the PA process is an important factor for proper implementation.³⁴

There are some concerns about the reliability and validity of PA in the literature.^{4,37} However, Vickerman expressed that students don't want to perceive as rewarding themselves or their peers too easily.²⁴ Simultaneously, student's grading appear to be similar to instructors' grading and lower than instructors.²⁶ Recently, Strang found that students' rate were consistent with the teachers' and there is no significant differences.³⁸

To overcome these drawbacks, authors recommended double marking by faculty members, multiple peer assessors, and clear grading criteria.²⁴ Furthermore, providing written feedback rather than grade²³ and anonymity is recommended in PA process to attain safe environment that can promote students' comfort.^{39,40}

There is limited literature about PA in radiography; studies showed that involving peers in providing feedback was perceived to be successful in radiography.^{28,41,42} Moreover, Naylor contend that PA enhanced radiography students' experience in teamwork and improve assessment results.⁴¹ It is found that the practice of PA is challenging and stressful,⁴¹ but this is similar to studies in other disciplines.^{33,34} The combination of formative feedback from teachers and peer promotes students' learning and adopting a blended approach to learning construct students' learning through collaborative engagement in the learning activities.⁴³ Peer support increases students' satisfaction of learning experiences.⁴⁴

The aim of this study was to assess the perception of students on the Formative Peer Assessment (FPA) initiative within a higher education setting for undergraduate diagnostic radiography students.

Methods

The study conducted in the Medical Diagnostic Imaging (MDI) Department at the College of Health Science–University of Sharjah, UAE. MDI programme initiated at 1998, it is a four-year undergraduate diagnostic radiography Bachelor of Science (Honours). The MDI programme spread over eight semesters. Course sequence ensures construction and acquisition of knowledge from basic to more advanced levels to adequately prepare MDI students for clinical practice.

This is a qualitative action research,⁴⁵ study conducted during the 2014–2015 academic year in the module “Radiographic Technique Clinical Practice” which is offered in the third year of the programme. The module provides the practical experience of the axial skeleton and skull imaging technique. It is the second clinical module thus; students will progress to more independent training under the supervision of clinical instructors. Besides, the module has a theoretical module as co-requisite (Radiographic Technique) to underpin the knowledge base.

The FPA process was used once in one of the module assignments; the assignment was a case study report about a patient that encountered during the clinical practice using a case study template (Appendix 1); it contributes to 10% to the total module grade.

FPA process was preceded by a training workshop for the students who consented to participate in the research. The workshop included a discussion about the process and training on how to use the assessment sheet. Students were assured of the anonymity of the peer assessment and feedback. The perceptions of students about the process were then assessed using focus group discussion.

Twenty-four out of 26 students participated in the study. After removing all identifying information, assignment papers were randomly distributed to the participating students, and a final check was done to make sure that no student received his or her assignment. The feedback from the peers was given to the researchers who then handle it to the student who originally wrote the corresponding assignment.

Focus group discussions were then conducted with students after nine days to determine their perceptions of the FPA experience. The following are the points addressed in the focus group:

1. Experience with the FPA.
2. Types of comments received during the FPA.
3. Participation in FPAs in the future.
4. Advantages and drawbacks of the FPA.
5. How to improve the process of the FPA.

Three focus group discussions conducted in the MDI lab; they were run by two clinical tutors who were trained on how to it. The module instructor wasn't available during the focus group discussions and wasn't present during any stage of the study. Two of the groups had six students each, and the third group had seven students. Five students who participated in the FPA didn't attend the discussions. The discussions were in English and were recorded and later transcribed. Participants were informed consented about recording.

Data analysis was conducted using content analysis. Frequently recurring words placed into categories, and themes emerged from the categories. Results analyzed by researchers and reviewed by independent colleagues from the study institution to ensure transparency and elimination of bias.

The themes observed were the nature of the FPA, advantages, drawbacks and areas of improvement for future implementation.

Ethical approval

Ethical approval obtained from the Research Ethics Committee of the study institution (DFCM/21/09/14/088).

Results

Nature of FPA

Participants had mixed opinions about who should be considered as a peer. Some participants thought that the peer should be someone studying at the same academic level, while other students believed that they should be assessed by a higher level student because it would be an opportunity to get valuable feedback from a more experienced student.

“I think for me it is better to be evaluated by a senior student ... as he will give better feedback compared to the peer who is in the same year.”

“I think if senior student evaluates my work, this will not give the chance of evaluating him which will reduce the benefit of PA, as I believed I got more benefits from being assessor not assessee.”

Advantages of FPA

Participants stated that it was a great learning opportunity for both peers

“I believe I learnt from others mistakes, and I will not repeat them in my coming assignments.”

“It is an opportunity for me to learn from others, as some students have excellent writing skills that I can benefit from.”

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