

Students as Assessors: Peer assessment and the benefits to students and staff

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Abstract

Assessment is fundamental and at the core of the student experience, however, assessment and feedback scores often receive lower appraisals on surveys such as the National Students Survey (NSS) within and across UK-based Higher Education (HE) institutions, in comparison to other NSS categories of student satisfaction. A systematic narrative SoTL literature review was conducted to understand the factors that enhance student learning in HE and to inform the peer assessment practice of teachers. The review demonstrates the benefits of peer assessment where students gain from acting as peer assessors and assessees. Engaging in the peer assessment process and peer feedback, develops understanding of assessment objectives and develops students' reflective skills through a meta-cognitive process. Participating in peer assessment activities can also improve academic performance and benefits staff by helping students develop the skills required for lifelong learning, such as decreasing reliance on teachers for learning development, and promoting autonomous communities of learners. This article will conclude that peer assessment and peer feedback contribute positively to students' learning experience. A key set of recommendations are identified for staff who are looking to support students engaging in peer assessment to maximise the benefits to learners.

KEYWORDS

peer assessment, peer feedback, higher education, student experience, student training, staff training

Introduction

The focus of this systematic narrative review (Healey, M. & Healey, R, 2023) is peer assessment with the primary aim to help staff understand the benefits to learners of engaging in peer assessment and support staff to help students engage in the process.

The last 20 years have witnessed the development of a rich scholarship that has explored the significance of assessment in the student learning process. This review takes as a starting point the development of Bigg's theory of constructive alignment, in which knowledge is constructed through the activities of the learner (Biggs, 1996). In Bigg's model, all components of the learning and teaching systems - curriculum and its intended outcomes, teaching methods used, assessment tasks - are aligned to each other. The second important milestone for the context of this review is Stobart's (2008) critique of the use of high-stake assessment in education, which encourage superficial learning. Stobart promoted a new approach which he called 'assessment for learning' and which "incorporates assessment into teaching and learning processes rather than focussing on what has been learnt at the end of the process (assessment of learning)" (Stobart, 2008).

Assessment for learning is interconnected with that of feedback which should be regarded as an integral part of the student learning process. For this review, the debate focussing on who delivers the feedback is central. The traditional approach sees educators as the source of feedback communicated to students. However, a more recent model outlines the role of the student in generating and using feedback. This is a learner-centred paradigm that postulates that students make sense of and use feedback to enhance their learning strategies.

From the literature, clear themes emerged within the topic of peer assessment. This paper is structured along the emergent themes therefore and focuses on the role of students' assessment of their peers. It examines how engaging in peer assessment encourages self-reflection and self-assessment and therefore helps students improve their own learning to future practice (in HE and beyond). The paper will argue that effective feedback allows students to understand the strengths and limitations of their own work, and concludes with a set of recommendations for staff looking to support students engaging in peer assessment to maximise the benefits to learners.

The need to improve assessment practices

In drafting the current literature review, the authors are aware of a large-scale systematic review of the impact of assessment and feedback policies and practices on students covering the period 2016-2021 (Pitt & Quinlan, 2022). This review has been instrumental in supporting the authors' reflections, and focus, on specific benefits to learners, and where the greatest impact of staff action to student learning can take place. However, we feel that our work offers a distinct perspective, as it focusses on synthesising recent scholarly contributions on peer assessment with a view to providing practical advice for educators who wish to engage their students in peer assessment and feedback.

Scholarly research into the nature and purpose of assessment and feedback has been driven not just by pedagogical considerations but also by changes in the landscape of HE. UK HEIs, for example, operate in an environment in which the marketization of HE has led to students being considered as consumers. To assess the quality of the student/consumer's experience, a series of data collection exercises have been created (e.g. NSS, GOs etc.), which then feed into national and international league tables and assessment schemes such as the TEF.

The consistently lower scores in assessment and feedback compared with other categories in the NSS, across a large number of UK institutions, reveals the profound disconnect between how universities conceive the role of assessment and feedback and their place in the curriculum, and what students understand assessment and feedback to be.

Centralising the agency of the student into the assessment and feedback process through peer assessment is a useful method to increase students' visibility of and engagement with feedback as well as developing lifelong reflective skills. This is in the context of a growing interest in shifting students from passive receivers of knowledge to active participants, partners, mentors and co-creators (Healey, 2014).

Defining peer assessment

This paper investigates peer assessment not in terms of intra-group assessment (peers assessing each other's contribution within a group task) but rather students assessing the work completed by peers. Taken from the literature the definition of peer assessment used in this article is "students judge and make decisions about the work of their peers against particular criteria" (Adachi et al., 2018) as cited in (Guo et al., 2023, p.1243). During peer assessment, students complete four activities (Kollar & Fischer, 2010) as cited in (Merry & Orsmond, 2020):

- Task performance (completes activity individually or in a group);
- Feedback provision (giving feedback on the work of other student(s));
- Feedback reception (listening/reading/discussing feedback with other student(s)); and
- Revision (student works to improve the work individually or collaboratively with the student that gave them feedback)

Peer assessment is a natural partner of self-assessment (defined and discussed below). When students engage in the assessment of the work of others, there is a natural tendency to reflect on their own work ie self-assessment. This can be encouraged and facilitated by staff also to promote higher engagement, and deeper learning. Therefore, alongside peer assessment, self-assessment (the assessment of one's own work) is also discussed herein.

Methodology

A freestanding SoTL literature narrative review was conducted systematically to construct knowledge to inform the peer assessment practice of teachers and enhance student learning in HE. As this review was undertaken collaboratively, to ensure consistency between co-researchers in the approaches to sourcing, filtering and selecting relevant articles, elements of a systematic review were used such as, utilising clearly co-constructed and defined inclusion and exclusion criteria.

Place of publication

Comprehensive tools and selective sources were used to identify the most prevalent journals with literature relevant for the purpose of this study (Suprimo, libguides and Google Scholar, author searches, reference lists) (Healey & Healey, 2023a). The literature was sourced from a range of SoTL publications, teaching and learning peer-reviewed journals and discipline-specific publications (MacMillan, 2018). It became apparent that particular journals were repeatedly highlighted within initial searches. Therefore, taking into consideration the audience and purpose of this review (to offer research-based guidance for assessment practices in Higher Education), these education-based journals became the landscape for sourcing relevant literature. A total of 11 journals were identified (which focused upon assessment and higher education), then reduced to 5 once key search terms had been applied (see Table 1). Citation chaining through backwards searching from the retrieved literature was used to identify further relevant literature for consideration. For a full list of journals and the number of papers considered, see

Table 2.

Search terms, screening and selection criteria

Key search terms and selection criteria were determined (Healey and Healey, 2023). With a focus on peer assessment for student learning in HE the following search terms were used:

("peer assessment" OR "peer evaluation" OR "peer feedback") AND ("Higher Education" OR "HE" OR "University") AND ("effectiv*" OR "impact" OR "student learning")
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To work towards retrieving the most relevant literature focusing on the research aims posed, a set of inclusion and exclusion criteria were used (Boland et al., 2017) and can be found in Table 1. Following searches and applying inclusion and exclusion criteria, screening took place through reading titles and abstracts (or the equivalent) to ensure that the reading material is relevant to the aims of this study. Where it was, the reading was included for further consideration. If not, it was excluded.

Table 1 Inclusion and Exclusion Criteria

Inclusion	Exclusion
Focused on Higher Education	Not focused on Higher Education
Focused on peer assessment	Not focused on peer assessment
Focused on student learning	Not focused on student learning
Written in English	Not written in English
(UG and PGT) taught classes	Doctoral and PGR

Research articles published between 2018 and Jan 2024	Non-research articles and articles published pre-2018
Reading generated from relevant journals focusing on assessment in higher education.	Reading not generated from relevant journals focusing on assessment in higher education.

Table 2 Journals targeted in review, the number of papers returned and retained in review

Journal	Impact Factor	Number of papers returned w criteria	Retained in review
Assessment & Evaluation in Higher Education	4.4	400	8 (plus 3 from back chaining)
Studies in Higher Education	4.2	39	6 (plus 11 from back chaining)
Active Learning in Higher Education	5.0	29	4 (plus 7 from back chaining)
Studies in Educational Evaluation Higher Education	3.1	84	4
The Journal of Higher Education	5.2	474	2
Review of Educational Research	3.1	0	0
Journal of Educational Research	4.0	0	0
International Journal of Higher Education	2.1	0	0
Journal of University Teaching & Learning Practice		0	0
International Journal of Teaching and Learning in Higher Education	1.79	0	0
	0.1	0	0

Benefits of Peer Assessment to Learners

Self and peer assessment are demonstrated as being beneficial to learners as part of a learning process through assessment for learning, and assessment as learning (Iglesias Pérez et al., 2022). Carless (2022) highlights that the role of the student within an effective peer assessment feedback process is more significant than that of the input from the teacher. Students have the central agency in the process whilst the major role of the teacher is to enable and facilitate high-quality experiences for students to peer assess.

Key themes generated from the literature review suggest that peer assessment builds learner autonomy, promotes learner communities, improves academic performance and is beneficial to the students when actuating as both the assessor and the assessee.

Peer assessment builds learner autonomy

Peer assessment decentralises the role of the teacher in the students' learning process. This means that students need to be prepared to actively engage in peer assessment as it has been shown to increase a "learners' confidence in study ability" and that learners "show more agency in taking control of their learning and becoming more self-efficacious" (Shen et

al., 2020, p.7). Both UG and PG students who participated in formative peer-assessment have reported greater student engagement, satisfaction, confidence and overall learning responsibility (Khatoon & Jones, 2022).

Students have reported that feedback from peers helped improve their work as well as the process reinforcing individual responsibility regarding feedback (Pitt & Carless, 2022). Peer assessment helps students to evaluate and regulate their learning (Nicol & McCallum, 2022) and peer assessment is seen as a means of increasing students' engagement with the feedback processes and improving learning (Nicol & McCallum, 2022). When exploring students' perceptions towards peer assessment, Deng et al. (2023) interviewed students about providing reviews to peers. The benefits of doing so highlighted include advancing feedback literacy, self-reflection and self-regulation.

Demonstrating further benefits for students learning through the peer assessment and feedback process, Wanner & Palmer (2018) emphasise the process and not the product (that is engaging in the process of peer assessment, and making value judgements on the work of others is more valuable than the receipt of feedback from others). Engaging with formulating and receiving peer feedback appears to be viewed as a type of assessment as and for learning where students develop critical and reflective thinking. Peer assessment therefore could build the self-efficacy of students, in turn building capacity, competencies and perhaps agency.

Peer assessment is an active process for students, and centralises their agency in their own learning journey, and that of their peers. Though, in contrast to other published work, Shen et al. (2020) did not identify improvement in learners' independence, ability to evaluate learning process, or learning strategy use. Shen et al. though did suggest that the lack of an improvement in student beliefs of independence is due to peer assessment still relying on an assessor, though students do not always read the feedback they receive from peers (Väyrynen et al., 2022).

Within peer assessment, the value judgments about the work of a student comes from outside (their peers). To increase student autonomy Väyrynen et al. (2022) advocate for specific reflective tasks to be incorporated as part of the peer assessment and feedback loop. That is, incorporating self-assessment and reflection within the activities of peer assessment. This would then allow for the engagement with peer assessment to become a process including student self-reflection and critical thinking which has been shown to improve learning (Huisman et al., 2019; Wanner & Palmer, 2018).

Reflective tasks as part of peer assessment encourage students to reflect upon both the peer feedback they receive and provide, which are to be conducted independently to achieve a higher level of reflection. Key findings of Väyrynen et al. (2022) show that through reflection within the peer assessment process, students developed a better understanding of what was expected of the assessment criteria set and in turn were able to make improvements to their work. Furthermore, students were able to discern the most pertinent elements of the feedback given and paid closer attention to the assessment instructions to ascertain success criteria and fulfil expectations.

Through peer assessment therefore students can increase understanding of the expectations on them in assessment. By reflecting on the feedback received and given to peers, students develop and use critical reflection skills to improve their learning and increase their capacity to become autonomous learners.

Peer assessment promotes a community of learners

Though peer assessment promotes and develops an individual learner's autonomy it is intrinsically not an individual activity. Instead, peer assessment is a collaborative activity in which students assess, and reflect on, the work and learning of each other and themselves. As a social enterprise, the complexities of peer assessment include assessing, and being assessed by nameless peers, but often by friends – this then means there are social constructs at play. Panadero et al. (2023, p.1070) discuss that “students want to be involved in peer assessment with familiar peers while acknowledging its drawbacks”. This tension is something to be made aware of when forming student groups that will engage in peer assessment, though, it may be overcome if a community of learners is established within a cohort.

Teachers therefore, in addition to providing multiple layers and opportunities for peer assessment and feedback, must build a community of trust and respect amongst students for them to build confidence and competencies in generating and providing quality feedback (Ibarra-Sáiz et al., 2020). To do this successfully it is important to include opportunities for students to discuss the feedback they have received and have given in an open and honest environment. This will not only help students clarify key points but also aid in their understanding of feedback for learning (Reddy et al., 2021).

Nieminen & Yang (2023) reconsider assessment “as a matter of being and becoming” where peer assessment and feedback practices enable the development of learning communities in both physical and online environments. Wood (2022) outlines the benefits of dialogic peer screencast feedback which “supports the development of relationships and an online peer feedback community” (p.929) where “learners view peers as ‘collaborators’, ‘teammates’ and ‘friends’ rather than competitors on a grading curve” (p.930). Engaging in peer assessment also creates opportunity for staff-student dialogue and has been seen to build communities of practice among students and staff (Merry & Orsmond, 2020). A community of staff and students engaging in, and facilitating, the peer assessment process can create an open and vibrant learning environment for all.

Peer assessment improves academic performance

Quantitative studies have demonstrated that peer assessment can also improve academic performance. Two meta-analyses conducted synthesised the results of 24 and 58 case studies respectively (Huisman et al., 2019; Li et al., 2020). Li et al. (2020) found students who participated in peer assessment showed a .291 standard deviation unit improvement in their general learning and performance, compared to those who did not. Similarly, Huisman et al. (2019) found that engaging with peer feedback led to improved performance compared to controls who received no feedback and students who engaged with self-assessment. Interestingly, while Huisman et al. (2019) found similar improvements following

peer and teacher feedback, Li et al. (2020) found that peer assessment had a more positive effect than teacher assessment. This perhaps indicates the importance of students engaging with the full peer assessment process, rather than simply receiving peer feedback, to gain the most benefits from the peer assessment process. Alternatively, these differences may be due to Li et al. (2020) including studies where a wider range of cognitive skills were measured, whereas Huisman et al. (2019) focused on studies where academic writing performance was measured.

Improvements in terms of academic performance have also been reported in recent case studies. Gao et al. (2023) found a significant improvement in second drafts, with an improvement rate of 9.2% following peer assessment. Hamed Mahvelati (2021) found that students who provided and received peer feedback significantly outperformed those who just received teacher feedback, although both groups significantly improved their speaking performance. However, comparisons were not made to a control group with no feedback, due to ethical concerns about a potential negative impact on students. Khatoon & Jones (2022) found that students (both undergraduates and postgraduates) who participated in formative peer-marking exercises had an average increase in final marks of 3%. While the size of the improvement varies in different cases and circumstances, there is overwhelming evidence that peer assessment can lead to improved academic performance.

Peer assessment benefits assessor and assessee

It is important to identify if the benefits of peer assessment to student learning come from providing peer feedback, receiving peer feedback, or a combination of the two. When comparing undergraduate students who only provided anonymous peer feedback to those who only received anonymous peer feedback, Huisman et al. (2018) found that both groups of students improved their writing performance in an authentic academic writing task. Similar improvements were observed, both in the overall marks and key assessment criteria such as content, structure and style, for both groups of students, indicating that acting as a peer reviewer can be as beneficial as receiving feedback.

Internal feedback (metacognitions and self-regulatory skills) is generated when a student compares their own work with the work of peers. This is alongside the comments received from peers. This concept was investigated by Nicol & McCallum (2022) who demonstrated that inner feedback (self-assessment) developed, and was more positive, the more comparisons were made, although there was little added value from reviewing comments made by peers. Therefore, providing feedback in itself is beneficial to learners and understanding their work and ability (Seiden Hyldegård & Jensen, 2023).

Similarly, Väyrynen et al. (2022) highlighted that through the process of reviewing the work of others, students developed a better understanding of what was expected of the assessment criteria set and as a result, were able to make improvements to their work. Moreover, students were able to recognise which elements of the feedback given were useful or not. In future work, students paid closer attention to the instructions to ascertain the success criteria and to fulfil assignment expectations. The contribution of peer feedback (both providing and receiving) to enhancing students' assessment literacy was evidenced by Cano et al. (2020) particularly through engagement with assessment criteria.

The meta-analysis performed by Li et al. (2020) found peer assessment had a greater effect, in terms of improved performance, when students were both an assessor and assessee than when students only performed one role. Gao et al., (2023) reached a similar conclusion when they investigated whether the volume and quality of feedback provided only, received only, or both provided and received, was the best predictor of performance improvements. While feedback provided was a better predictor of improvements than feedback received, consideration of both the feedback provided and the feedback received was even better. This led Gao et al. (2023) to suggest that the joint, or bilateral, benefits of both providing and receiving peer feedback may be greater than the individual benefits.

Teacher considerations for successful engagement in peer assessment

Though there are many significant benefits evidenced to the enhancement of student learning through the vehicle of peer assessment, Panadero & Alqassab (2019) highlight that peer assessment is rarely utilised in universities with more traditional assessment approaches remaining dominant. Väyrynen et al. (2022) offer a potential reason for this being that HE practitioners may not feel qualified enough nor have the pedagogical knowledge and skills to design and implement a peer assessment process. Therefore, it is imperative to explore teacher considerations for successful engagement in peer assessment. Key themes generated from the literature for this include consideration of formative and summative assessment, peer assessment within a group dynamic, types of useful peer feedback, student training for successful peer assessment, and what training may look like.

Peer assessment as a tool for formative and summative assessment

Peer assessment in the literature is demonstrated across multiple levels of education, discipline assessment modes (for example: written work, presentations, group participation) and can be utilised formatively and summatively. (Wanner & Palmer, 2018) advise that peer assessment should only be used for formative feedback, not summative. This is supported by Huisman et al. (2019) who conclude that students' perception of the process and benefits of peer assessment may be dependent on the place that this has in the overall assessment for a module and that including peer assessment as purely formative may be the most effective practice.

However, in a study of year 1 undergraduates having been trained to undertake peer assessment, Iglesias Pérez et al. (2022) demonstrated a high correlation between staff assessment and peer assessment evidencing the validity of summative peer assessment. Gao et al. (2023) found that peer assessment works effectively on a first draft of an assessment that can then be redrafted for staff assessment. Multiple peer reviews on the same piece of work benefit students in having access to a range of perspectives.

Furthermore, multiple experiences of having to construct feedback for peers enhance students' assessment literacy (Carless, 2022) which helps to scaffold learning for both the peer reviewer and reviewee. Diversity in plurality within peer assessment experiences of

being the assessor and the assessee are key to enhancing student learning through peer assessment, as discussed previously.

Peer assessment within a group

Peer assessment for assessing individuals within a group context was an apparent theme within the included literature. Fairness is a key factor which impacts students' motivation and engagement within group peer assessment. A potential key ethical issue, causing a sense of unfairness amongst students where peer assessment is used to determine a group grade, is that individual effort and contribution to the final product are difficult to assess particularly when most of the work may be conducted outside the supervision of the educator (Ion et al., 2023). Overall, this paper works towards demonstrating that when students are active agents within the assessment and grade generation/construction through both peer assessment and self-assessment, they feel that group assessment is fair (Ion et al., 2023). Peer assessment within a group dynamic is reported to work best when students conduct peer assessment individually one-to-one and then the grades, comments given are ratified within and by the group. In this research, the group dynamic unexpectedly did not generate tensions within the group, perhaps due to the democratic way the peer assessment was conducted. Key benefits reported of the peer assessment experience through and within the group included autonomy, reflection and responsibility.

Rico-Juan et al. (2022) also advocate for collaborative peer assessment through groups. This research compared individual and collaborative peer assessment in a study of 1574 assessments obtained from 82 first year students of Computer Engineering at a Spanish University. The results show that collaborative peer assessment in groups (groups of three for this experiment) improves students' understanding and learning. Individual peer assessment within the context of a group was reported to be the most effective and accurate due to the possibility of having a greater number of assessors per assignment.

When using peer assessment within groups, to promote students' sense of fairness and buy in, educators should incorporate peer assessment opportunities for students where peer assessment is given one-to-one and then ratified within and by the group (Ion et al., 2023; Rico-Juan et al., 2022). Careful consideration for the group size is required as very large groups lead to lower levels of student motivation and work being carried out by individuals (Ion et al., 2023).

Types of peer feedback

It is important to consider the types of feedback that students find most useful for their learning. In a study by Cheng et al. (2015) of undergraduate students participating in peer assessment, it was demonstrated that constructive, cognitive feedback highlighting direct correction was more beneficial for the students' writing and learning than affective feedback (for example, giving praise). Gao et al. (2023) also identify that providing suggestions/solutions as part of feedback is most useful in comparison to stating the 'problem' in a piece of work. Huisman et al. (2018, p.964) noted that students found explanatory peer feedback comments "relatively important in comparison to analytical feedback and peer feedback containing suggestions for revision" and suggest that the role

of explanatory feedback should be highlighted when training students to provide feedback. Students therefore need guiding to be precise, and offer actionable and explanatory peer feedback for the greatest benefit to and for learning.

An additional salient point is the importance of including opportunities for students to discuss the feedback they have received and given (Reddy et al., 2021). This may help students clarify key points and actions suggested by peers to enhance student learning.

Student training for successful peer assessment

The meta-analysis of Li et al. (2020, p.193) found that “The most critical factor is rater training. When students receive rater training, the effect size of peer assessment is substantially larger than when students do not receive such training”. This section therefore discusses the need to achieve student buy-in to peer assessment, and then what effective training may look like for students to engage in peer assessment.

Establishing student buy-in

The literature on peer assessment makes it clear that for it to be effective, there must be student ‘buy-in’, in that students must perceive that there will be benefits, that they are capable of carrying out the task, and it is a useful activity for them to do. In Chen & Lou (2004), students report that they value peer assessment and its contribution to peers’ grades, however, it can be challenging for teachers to engage students (Vickerman, 2009). A study of 790 year 1 students taking a Child Development module (Struyven et al., 2006) examined the impact of assessment modes (portfolios, case-base, peer and MCQ) on engagement. It was found that “students’ approaches to learning were not deepened by the student-activating teaching/learning environment, nor by the new assessment methods such as case-based evaluation, peer and portfolio assessment” (p. 287-288). Through interviews with the participants, it was identified that problems in these settings including “high workloads, lack of feedback and structure, fragmented knowledge and fellow students profiting from the group’s work efforts” (p.288). This goes to demonstrate that students need to be ‘onboarded’ to the benefits of engaging in peer assessment and that structure and training need to be in place to ensure equity.

The Peer Assessment Motivation (PAM) theory proposes certain factors to engage students worthy of consideration. For example, motivation regarding desired outcome is a feature. Additionally, the value placed on the activity, such as importance, cost, enjoyability and one’s own self-efficacy are crucial (Guo et al., 2023). It has been shown that students from cultures that are traditionally teacher-centred lack the confidence to engage in, and are negative toward, peer assessment (Allen & Mills, 2016; Zhang, 2018, as cited in Gao et al., 2023). Other factors that staff should consider include time constraints, language proficiency and feelings of being generally unwilling to participate. For example, Vattøy et al. (2021) highlight a gender effect in the giving and receiving marks. Females were more likely to be aware of the negative social implications of peer assessment, specifically the impact on friendships when giving and receiving low marks in particular. Language ability is also a factor. Hamed Mahvelati (2021) found that students who provided and received peer corrective feedback significantly outperformed those who received teacher corrective

feedback only. Both groups significantly improved their speaking performance. Despite this, students had a negative perception of peer corrective feedback, with most students reporting that the peer corrective feedback was not useful, they disliked the approach and felt they and their peers' "linguistic competence" compromised the learning experience.

What training can look like

Teachers need to provide explicit instructions to the peer reviewers and scaffold student learning to support peer review (Deng et al., 2023), teaching students how to peer assess effectively to provide high-quality feedback (Ibarra-Sáiz et al., 2020; Reddy et al., 2021; Wannier & Palmer, 2018; Winstone & Carless, 2019). Coaching students to peer review effectively is a must as they may not understand the principles and practices involved. Students need to gain experiences of peer assessing to build their competencies and trust in the competencies of their peers to peer assess their work (Winstone & Carless, 2019). An example of peer assessment training provided by Shen et al. (2020) followed the method of Min (2005) and involved a two-hour session with an explanation of what peer assessment is, guidelines on how to assess, discussion of rubrics to be used, examples of text feedback and practice in the class.

The literature in this area demonstrated that more experience of peer assessment and trust in the peer assessment process resulted in more positive outcomes. This suggests that 'practicing' peer assessment will increase student confidence (Rotsaert et al., 2017). Peer review with a written response and exemplars of student work (rather than work from within the current cohort) and teacher feedback are deemed as effective approaches to encourage effective use of peer assessment (Fernández-Toro & Duensing, 2021; Nicol & McCallum, 2022). Where multiple students are assessing one exemplar, sharing the distribution of marks from different assessors can expose students to a plurality of potential outcomes for the same piece of work and reinforce the importance of tacit knowledge in their future practice as tutors; finally, Fernández-Toro & Duensing (2021) advocate the integration of peer assessment into the curriculum "in a graded and integrated fashion" (p.1218). Carless (2022) suggests that students be asked to produce a draft of their work; students would then be exposed to high-quality exemplars, which clarify what an excellent performance in that task looks like. In this manner, the exemplars would act "as a proxy for teacher feedback" (p.148), which would encourage internal feedback and stimulate students to improve their work. There is evidence that offering a range of quality exemplars can improve overall efficacy.

Not only a one-off

Mercader et al. (2020) stress the importance for students to be involved in long-term peer feedback activities, both providing and receiving feedback. However, other elements must be considered in the design of assessment for continuous feedback activities to contribute to students' learning, in particular feedback loop processes (when the learner acts on feedback and engages in actions that lead to the closure of the gap between required standards and performance) or time for students to internalize the feedback and make use of it. Double-loop feedback processes, which are "complex long-term adjustments to

learning strategies” (Careless, 2019, p.706), are shown to improve feedback uptake as they encourage learners to act on the feedback and implement different learning strategies. As students gain increasingly more experience of peer assessment, their need for training will reduce (Hodgson et al., 2014). Nicol & McCallum (2022) demonstrate that students can generate high-quality feedback without teacher feedback, but this was based on multiple sequential comparisons meaning that feedback accumulates and becomes more expansive. When considering intra-peer assessment, the need for repetition is also true. (Brooks & Ammons, 2003) recommend allowing students to peer assess at multiple stages as it helps students develop the capacity to assess their peers and in the case of this study deterring free riding. Furthermore, Carless (2022, p.146) argues that “Sustained and cumulative student peer review is recommended because one-off implementations are generally limited in building students’ capacities for evaluative judgment”. It is therefore worth considering whether peer assessment can be placed longitudinally through modules and programmes to maximise student benefits and build and consolidate students’ competencies as assessors.

Limitations

The review undertaken aims to provide a map of the research on peer assessment and feedback completed between 2018 and January 2024. It employs a systematic and rigorous approach to the identification of the relevant literature in order to minimise bias. The material reviewed only comes from peer-reviewed publications, which leaves out case studies and experiences from non peer-reviewed sources and which may still be relevant. All literature is in English although an effort was made to include case studies from a wider international context; however, the danger here is that their examination may have been decontextualised in order to outline shared aspects of best practice. Finally, this literature review has focussed only on the experience of students and educators in higher education, although the authors are cognisant of research conducted on relevant practices in primary, secondary and tertiary education.

Conclusions

For teachers to fully support students in engaging with peer assessment, there is a need for staff training and professional development regarding how to design engaging and effective peer assessment activities. From this literature review, three key themes for staff looking to support students engaging in peer assessment and maximise the benefits to learners have been identified.

Build a community of trust and respect amongst the students as assessors and assessees. This may include ‘icebreakers’ and collaborative exercises that increase student engagement and cooperation in smaller groups, and across the cohort.

Student training to peer assess effectively and provide quality feedback.

Know the criteria: Students and teachers should have an agreed understanding of the assignment criteria and how students may demonstrate success for each criterion. Criteria need to be well defined, and the levels clearly delineated.

Incorporate discussion regarding how to make learning and thinking visible in relation to assignment criteria.

Give actionable feedback: Encourage students to provide suggestions/solutions rather than just identifying problems or giving praise when they provide feedback.

How to reflect on feedback received: Incorporate reflective tasks early on in the classroom to encourage students to reflect upon feedback that they both receive and construct. Reflective tasks are recommended to be conducted independently to achieve a higher level of cognitive engagement.

Closing the loop: Consider when dialogue and discussion reflecting upon the peer feedback given and produced can be incorporated to obtain further critical engagement with peer assessment and feedback.

Place peer assessment longitudinally through a programme. There should be multiple opportunities for students to construct and receive peer feedback from and for multiple peers. Students should also have experiences of co-creating assessment criteria and tasks with their teachers from the beginning of their courses. This has been demonstrated to improve learning and to build student self-efficacy as assessors through their HE career.

This literature review has demonstrated several benefits of peer assessment. Peer assessment has been shown to improve academic performance and, beyond that, to foster the development of students as learners. Peer assessment promotes autonomous communities of learners who gain benefits acting as both a peer assessor and assessee (providing feedback to, and receiving feedback from, peers). By engaging continually through their degree programmes in the process of assessment, peer assessment delivers an increase in understanding of how assessment works (criteria) and promotes increased reflection of learners on their learning. Peer assessment activities therefore help improve reflective practices, decrease reliance on teachers for learning development, and, even more importantly, develop the skills required for lifelong learning.

References

- Adachi, C., Tai, J. H.-M., & Dawson, P. (2018). Academics' perceptions of the benefits and challenges of self and peer assessment in higher education. *Assessment & Evaluation in Higher Education*, 43(2), 294-306. <https://doi.org/10.1080/02602938.2017.1339775>
- Allen, D., & Mills, A. (2016). The impact of second language proficiency in dyadic peer feedback. *Language Teaching Research*, 20(4), 498-513. <https://doi.org/10.1177/1362168814561902>
- Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher education*, 32(3).
- Boland, A., Cherry, G., & Dickson, R. (2017). *Doing a Systematic Review: A Student's Guide*. SAGE Publications. <https://books.google.co.uk/books?id=H1AIDwAAQBAJ>
- Brooks, C. M., & Ammons, J. L. (2003). Free Riding in Group Projects and the Effects of Timing, Frequency, and Specificity of Criteria in Peer Assessments. *Journal of education for business*, 78(5), 268-272. <https://doi.org/10.1080/08832320309598613>
- Cano, E., Pons-Seguí, L., & Ion, G. (2020). The impact of peer feedback on student teachers' assessment literacy. *On your marks: Learner-focused feedback literacy*, 60-71.
- Carless, D. (2022). From teacher transmission of information to student feedback literacy: Activating the learner role in feedback processes. *Active Learning in Higher Education*, 23(2), 143-153. <https://doi.org/10.1177/1469787420945845>
- Carless, D., (2019) Feedback loops and the longer-term: towards feedback spirals, *Assessment & Evaluation in Higher Education*, 44:5, 705-714, <https://doi.org/10.1080/02602938.2018.1531108>
- Chen, Y., & Lou, H. (2004). Students' Perceptions of Peer Evaluation: An Expectancy Perspective. *Journal of education for business*, 79(5), 275-282. <https://doi.org/10.3200/JOEB.79.5.275-282>
- Cheng, K.-H., Liang, J.-C., & Tsai, C.-C. (2015). Examining the role of feedback messages in undergraduate students' writing performance during an online peer assessment activity. *The Internet and Higher Education*, 25, 78-84. <https://doi.org/10.1016/j.iheduc.2015.02.001>
- Deng, Y., Liu, D., & Feng, D. (2023). Students' perceptions of peer review for assessing digital multimodal composing: the case of a discipline-specific English course. *Assessment & Evaluation in Higher Education*, 48(8), 1254-1267. <https://doi.org/10.1080/02602938.2023.2227358>
- Evans, C. (2013). Making Sense of Assessment Feedback in Higher Education. *Review of Educational Research*, 83(1), 70-120. <https://doi.org/10.3102/0034654312474350>
- Fernández-Toro, M., & Duensing, A. (2021). Repositioning peer marking for feedback literacy in higher education. *Assessment & Evaluation in Higher Education*, 46(8), 1202-1220. <https://doi.org/10.1080/02602938.2020.1863911>
- Gao, Y., An, Q., & Schunn, C. D. (2023). The bilateral benefits of providing and receiving peer feedback in academic writing across varying L2 proficiency. *Studies in Educational Evaluation*, 77, 101252. <https://doi.org/10.1016/j.stueduc.2023.101252>

Guo, X., Liu, J., Tang, H., Gao, R., Chen, Q., Wolfer, T., & Haynes, A. (2023). Development and validation of the peer assessment motivation scale (PAMS) in higher education. *Studies in Higher Education*, 48(8), 1243-1257. <https://doi.org/10.1080/03075079.2023.2191648>

Hamed Mahvelati, E. (2021). Learners' perceptions and performance under peer versus teacher corrective feedback conditions. *Studies in Educational Evaluation*, 70, 100995. <https://doi.org/10.1016/j.stueduc.2021.100995>

Harland, T., Wald, N., & Randhawa, H. (2017). Student peer review: enhancing formative feedback with a rebuttal. *Assessment & Evaluation in Higher Education*, 42(5), 801-811. <https://dx.doi.org/10.1080/02602938.2016.1194368>

Healey, M. (2014). Students as partners in learning and teaching in higher education. Workshop Presented at University College Cork

Healey, M. & Healey, R., (2023). Searching the Literature on Scholarship of Teaching and Learning (SoTL): An Academic Literacies Perspective Part 1. *Teaching & Learning Inquiry* 11. <https://doi.org/10.20343/teachlearningqu.11.4>

Healey, M. & Healey, R. (2023) Reviewing the Literature on Scholarship of Teaching and Learning (SoTL): An Academic Literacies Perspective Part 2., *Teaching & Learning Inquiry*, 11. <https://doi.org/10.20343/teachlearningqu.11.4>

Hodgson, P., Chan, K., & Liu, J. (2014). Outcomes of synergetic peer assessment: first-year experience. *Assessment & Evaluation in Higher Education*, 39(2), 168-178. <https://doi.org/10.1080/02602938.2013.803027>

Huisman, B., Saab, N., van den Broek, P., & van Driel, J. (2019). The impact of formative peer feedback on higher education students' academic writing: a Meta-Analysis. *Assessment & Evaluation in Higher Education*, 44(6), 863-880. <https://doi.org/10.1080/02602938.2018.1545896>

Huisman, B., Saab, N., van Driel, J., & van den Broek, P. (2018). Peer feedback on academic writing: undergraduate students' peer feedback role, peer feedback perceptions and essay performance. *Assessment & Evaluation in Higher Education*, 43(6), 955-968. <https://doi.org/10.1080/02602938.2018.1424318>

Ibarra-Sáiz, M. S., Rodríguez-Gómez, G., & Boud, D. (2020). Developing student competence through peer assessment: the role of feedback, self-regulation and evaluative judgement. *Higher education*, 80(1), 137-156. <https://doi.org/10.1007/s10734-019-00469-2>

Iglesias Pérez, M. C., Vidal-Puga, J., & Pino Juste, M. R. (2022). The role of self and peer assessment in Higher Education. *Studies in Higher Education*, 47(3), 683-692. <https://doi.org/10.1080/03075079.2020.1783526>

Ion, G., Díaz-Vicario, A., & Mercader, C. (2023). Making steps towards improved fairness in group work assessment: The role of students' self- and peer-assessment. *Active Learning in Higher Education*, 0(0), 14697874231154826. <https://doi.org/10.1177/14697874231154826>

Khatoun, R., & Jones, E. (2022). Flipped small group classes and peer marking: incentives, student participation and performance in a quasi-experimental approach. *Assessment & Evaluation in Higher Education*, 47(6), 910-927. <https://doi.org/10.1080/02602938.2021.1981823>

Kollar, I., & Fischer, F. (2010). Peer assessment as collaborative learning: A cognitive perspective. *Learning and Instruction*, 20(4), 344-348. <https://doi.org/10.1016/j.learninstruc.2009.08.005>

Li, H., Xiong, Y., Hunter, C. V., Guo, X., & Tywoniw, R. (2020). Does peer assessment promote student learning? A meta-analysis. *Assessment & Evaluation in Higher Education*, 45(2), 193-211. <https://doi.org/10.1080/02602938.2019.1620679>

MacMillan, M. (2018). The SoTL literature review: Exploring new territory. *SoTL in Action*, 23-31.

Mercader, C., Ion, G., & Díaz-Vicario, A. (2020). Factors influencing students' peer feedback uptake: instructional design matters. *Assessment & Evaluation in Higher Education*, 45(8), 1169-1180. <https://doi.org/10.1080/02602938.2020.1726283>

Merry, S., & Orsmond, P. (2020). Peer assessment: the role of relational learning through communities of practice. *Studies in Higher Education*, 45(7), 1312-1322. <https://doi.org/10.1080/03075079.2018.1544236>

Min, H.-T. (2005). Training students to become successful peer reviewers. *System*, 33(2), 293-308. <https://doi.org/10.1016/j.system.2004.11.003>

Nicol, D., & McCallum, S. (2022). Making internal feedback explicit: exploiting the multiple comparisons that occur during peer review. *Assessment & Evaluation in Higher Education*, 47(3), 424-443. <https://doi.org/10.1080/02602938.2021.1924620>

Nieminen, J. H., & Yang, L. (2023). Assessment as a matter of being and becoming: theorising student formation in assessment. *Studies in Higher Education*, 1-14. <https://doi.org/10.1080/03075079.2023.2257740>

Panadero, E., & Alqassab, M. (2019). An empirical review of anonymity effects in peer assessment, peer feedback, peer review, peer evaluation and peer grading. *Assessment & Evaluation in Higher Education*, 44(8), 1253-1278. <https://doi.org/10.1080/02602938.2019.1600186>

Panadero, E., Alqassab, M., Fernández Ruiz, J., & Ocampo, J. C. (2023). A systematic review on peer assessment: intrapersonal and interpersonal factors. *Assessment & Evaluation in Higher Education*, 48(8), 1053-1075. <https://doi.org/10.1080/02602938.2023.2164884>

Pitt, E., & Carless, D. (2022). Signature feedback practices in the creative arts: integrating feedback within the curriculum. *Assessment & Evaluation in Higher Education*, 47(6), 817-829. <https://doi.org/10.1080/02602938.2021.1980769>

Pitt, E., & Quinlan, K. M. (2022). Impacts of higher education assessment and feedback policy and practice on students: a review of the literature 2016-2021, *AdvanceHE*.

Reddy, K., Harland, T., Wass, R., & Wald, N. (2021). Student peer review as a process of knowledge creation through dialogue. *Higher Education Research & Development*, 40(4), 825-837. <https://doi.org/10.1080/07294360.2020.1781797>

Rico-Juan, J. R., Cachero, C., & Macià, H. (2022). Influence of individual versus collaborative peer assessment on score accuracy and learning outcomes in higher education: an empirical study.

Assessment & Evaluation in Higher Education, 47(4), 570-587.
<https://doi.org/10.1080/02602938.2021.1955090>

Rotsaert, T., Panadero, E., Estrada, E., & Schellens, T. (2017). How do students perceive the educational value of peer assessment in relation to its social nature? A survey study in Flanders. *Studies in Educational Evaluation*, 53, 29-40. <https://doi.org/10.1016/j.stueduc.2017.02.003>

Seiden Hyldegård, J., & Jensen, H. N. (2023). The implied peer: thesis writers' feedback activities and experiences in group supervision. *Studies in Higher Education*, 48(11), 1754-1766.
<https://doi.org/10.1080/03075079.2023.2212273>

Shen, B., Bai, B., & Xue, W. (2020). The effects of peer assessment on learner autonomy: An empirical study in a Chinese college English writing class. *Studies in Educational Evaluation*, 64, 100821. <https://doi.org/10.1016/j.stueduc.2019.100821>

Stobart, G. (2008). *Testing times: The uses and abuses of assessment*. Routledge.

Struyven, K., Dochy, F., Janssens, S., & Gielen, S. (2006). On the dynamics of students' approaches to learning: The effects of the teaching/learning environment. *Learning and Instruction*, 16(4), 279-294.
<https://doi.org/10.1016/j.learninstruc.2006.07.001>

Vattøy, K.-D., Gamlem, S. M., & Rogne, W. M. (2021). Examining students' feedback engagement and assessment experiences: a mixed study. *Studies in Higher Education*, 46(11), 2325-2337.
<https://doi.org/10.1080/03075079.2020.1723523>

Väyrynen, K., Lutovac, S., & Kaasila, R. (2022). Reflection on peer reviewing as a pedagogical tool in higher education. *Active Learning in Higher Education*, 24(3), 291-303.
<https://doi.org/10.1177/14697874211073045>

Vickerman, P. (2009). Student perspectives on formative peer assessment: an attempt to deepen learning? *Assessment & Evaluation in Higher Education*, 34(2), 221-230.
<https://doi.org/10.1080/02602930801955986>

Wanner, T., & Palmer, E. (2018). Formative self-and peer assessment for improved student learning: the crucial factors of design, teacher participation and feedback. *Assessment & Evaluation in Higher Education*, 43(7), 1032-1047. <https://doi.org/10.1080/02602938.2018.1427698>

Winstone, N., & Carless, D. (2019). *Designing effective feedback processes in higher education: A learning-focused approach*. Routledge.

Wood, J. M. (2022). Supporting the uptake process with dialogic peer screencast feedback: a sociomaterial perspective. *Teaching in Higher Education*, 1-23.
<https://doi.org/10.1080/13562517.2022.2042243>

Zhang, X. (2018). *An Examination of the Effectiveness of Peer Feedback on Chinese University Students' English Writing Performance* (Publication Number 10746664) [Ph.D., Oakland University]. Social Science Premium Collection. United States -- Michigan.
<https://www.proquest.com/dissertations-theses/examination-effectiveness-peer-feedback-on/docview/2091410094/se-2?accountid=14116>