

## EXPLORING PEER ASSESSMENT IN UNDERGRADUATE ESSAY WRITING: CHEMISTRY MODULE STUDY

Julietta Litka Milian

Department of Chemistry, Durham University, South Road, Durham, DH1 3LE, United Kingdom

### Abstract

*This article reports on a study that investigates the impact of peer assessment on undergraduate students' understanding of essay writing criteria within the Chemistry Molecules in Action module. The study involved 44 first-year undergraduate students from diverse academic backgrounds who participated in a formative activity for which they wrote a 700-word essay on a specific topic and assessed two essays from their peers. The research aimed to examine student perceptions of peer assessment as a tool for enhancing essay writing skills, collaborative work, and the ability to provide constructive feedback and engage critically with peers' essays. Data collection included an anonymous online survey distributed to all module students, focusing on the effectiveness, challenges, and benefits of peer assessment. The findings provide insights into diverse perspectives on the efficacy of peer feedback and anticipated challenges, highlighting the importance of tailored support and resources to foster a supportive peer assessment environment. These findings contribute to ongoing discussions on the efficacy of peer assessment and pedagogical enhancement strategies in higher education.*

**Keywords:** peer-assessment, essay assessment, undergraduate students, higher education

### 1. INTRODUCTION

In modern educational settings, fostering active engagement and collaborative learning experiences are essential for encouraging a dynamic and enriching academic environment. Peer assessment, a practice involving student evaluation and feedback on the work of their peers, has emerged as a powerful tool in achieving these goals [1,2]. This article explores the concept of engaging with students through peer assessment, focusing on the practice of students marking essays of their peers. By examining the benefits, challenges, and best practices associated with peer assessment, this article aims to shed light on how educators can effectively incorporate this pedagogical approach into their teaching strategies.

Peer assessment offers numerous advantages beyond traditional methods of evaluation. It promotes deeper learning by encouraging students to critically analyse and evaluate their peers' work, thereby enhancing their understanding of subject matter and refining their analytical skills [3]. Moreover, peer assessment cultivates a sense of ownership and responsibility among students for their own learning process, as they actively participate in the evaluation and feedback process [4]. By engaging students as both evaluators and recipients of feedback, peer assessment fosters a collaborative learning environment that emphasises cooperation, mutual respect, and collective growth [5].

However, implementing peer assessment effectively requires careful consideration of various factors. Challenges such as ensuring fairness and consistency in evaluation, addressing issues of bias or subjectivity, and providing adequate training and support for students are crucial aspects that educators must navigate [6]. Fostering a culture of constructive feedback and encouraging students to engage in reflective practice are essential for maximising the benefits of peer assessment while mitigating potential pitfalls [7].

Engaging with students through peer assessment offers a transformative approach to teaching and learning, empowering students to become active participants in their educational journey [8]. By harnessing the power of collaborative evaluation, educators can create inclusive and dynamic learning environments that promote deeper understanding, critical thinking, and lifelong learning skills among students [9].

### *1.1. Benefits of Peer Assessment for Essay Writing*

Peer assessment plays a crucial role in preparing students for essay writing by providing them with opportunities to engage in critical thinking, receive feedback, and develop essential skills for academic and professional success [7,10].

#### *1.1.1. Enhanced Understanding*

Engaging in peer assessment provides students with a unique opportunity to delve deeper into the assessment criteria and expectations set forth by their instructors [7,11,12]. Through the process of evaluating their peers' work, students develop a more nuanced understanding of what constitutes high-quality writing within a specific academic context [13–15]. By critically examining the strengths and weaknesses of their peers' essays, students can identify the key elements that contribute to effective writing, such as clarity of argument, organisation of ideas, use of evidence, and adherence to academic conventions [5,16].

This enhanced understanding empowers students to align their own work more closely with the desired standards outlined by their instructors [17]. By recognising the specific criteria that contribute to a successful essay, students can make informed decisions about how to structure their own writing, select relevant evidence, and articulate their ideas effectively [3]. Engaging in peer assessment encourages students to adopt a more discerning approach to evaluating their own work, as they gain insight into the expectations of their academic community [7].

#### *1.1.2. Feedback Reception*

Peer assessment offers students the chance to receive feedback from their peers, thereby gaining insights from multiple perspectives on their work [5,18–20]. This feedback mechanism serves as a valuable tool for students to identify both the strengths and weaknesses in their writing, enabling them to enhance their overall writing proficiency.

The feedback received through peer assessment can offer a fresh and diverse perspective that may not be readily apparent when receiving feedback solely from instructors. Peers may notice aspects of the writing that instructors overlook, providing a more comprehensive assessment of the work [21]. Additionally, peers can offer feedback from the standpoint of fellow learners, which can resonate more deeply with the recipient and facilitate a greater understanding of areas needing improvement.

The feedback obtained from peers can aid students in identifying specific areas for improvement in their writing. Whether it relates to clarity of expression, logical coherence, or the effective use of evidence, peer feedback can pinpoint areas that require attention and offer suggestions for improvement [22]. This constructive criticism serves as a catalyst for growth, prompting students to reflect on their writing practices and implement changes to enhance the quality of their work [1,23,24].

The process of receiving feedback from peers fosters a culture of collaboration and mutual support among students. It encourages an open exchange of ideas and promotes a sense of collective responsibility for each other's academic development [3]. Students learn not only from their own feedback but also from providing feedback to their peers, as the act of critiquing others' work enhances their own analytical skills and understanding of effective writing practices [13].

#### *1.1.3. Critical Thinking*

Engaging in peer assessment fosters critical thinking skills among students, as they analyse and evaluate the content, structure, and presentation of their peers' essays ([13,25,26]. By assuming the role of assessors, students are prompted to approach the essays with a discerning eye, examining various aspects such as argument coherence, evidence quality, and logical flow.

Through this process, students develop the ability to assess the effectiveness of different writing strategies and techniques employed by their peers. They learn to identify strengths and weaknesses in the essays, distinguishing between well-supported arguments and unproven claims [7,13]. This analytical exercise encourages students to question assumptions, weigh evidence, and draw informed conclusions, thus practicing their critical thinking abilities.

Peer assessment prompts students to engage more deeply with the subject matter, as they consider the ideas presented in their peers' essays. By critically evaluating the content, students gain a deeper understanding of the topic and its nuances. They learn to identify underlying themes, evaluate the validity of arguments, and appreciate different perspectives [5,13], thus enhancing their intellectual engagement with the subject matter.

The process of evaluating their peers' essays fosters a culture of intellectual discourse and debate among students. Through constructive review and respectful disagreement, students learn to articulate their viewpoints effectively and engage in scholarly dialogue [3]. This collaborative exchange of ideas stimulates intellectual curiosity and encourages students to explore complex issues from multiple angles, thus broadening their perspective and deepening their understanding of the subject matter.

#### *1.1.4. Self-Reflection and Preparation for Real-World Situations*

Engaging in peer assessment not only involves evaluating the work of others but also prompts students to reflect on their own writing practices and skills. As students analyse their peers' essays and provide feedback, they naturally compare the strengths and weaknesses of their peers' work to their own writing style and approach. This comparative process encourages self-reflection, allowing students to consider how they would approach the assignment differently or which aspects of their writing they could improve upon [17,27,28].

Self-reflection is a critical component of the learning process as it fosters the development of metacognitive skills [29]. By reflecting on their own writing, students gain insight into their writing strengths and weaknesses, as well as their learning preferences and strategies [30]. This awareness enables students to take ownership of their learning process and become more self-directed learners [31,32].

Self-reflection encourages students to set goals for improvement and develop action plans to address areas of weakness identified through the peer assessment process. For example, a student who receives feedback on the clarity of their arguments may reflect on strategies to improve the coherence and organisation of their writing in future assignments [33].

In professional settings, individuals frequently engage in reviewing and critiquing the work of their colleagues as part of collaborative projects and team endeavors [34–37]. Peer assessment in academic contexts simulates these real-world scenarios, providing students with valuable experience and skills applicable to their future careers [13,38].

Participating in peer assessment enables students to develop the capacity to evaluate the quality of their peers' work objectively, identify areas for improvement, and provide constructive feedback [7,39]. These skills are highly transferable to professional environments, where individuals must collaborate effectively, communicate feedback diplomatically, and critically evaluate the work of their colleagues [3,40,41].

Peer assessment encourages students to adopt a reflective approach to their own work, fostering metacognitive skills essential for lifelong learning and professional development [33,42]. By engaging in the process of evaluating and providing feedback on their peers' work, students gain insights into their own strengths and weaknesses, thereby enhancing their self-awareness and self-regulation abilities [43,44].

Additionally, peer assessment promotes the cultivation of interpersonal skills, such as effective communication, collaboration, and conflict resolution, which are integral to success in diverse professional settings [17,45–47]. Through constructive engagement with their peers, students learn to navigate differing viewpoints, negotiate consensus, and work collaboratively towards shared goals [48,49].

#### *1.1.5. Collaborative Learning*

Peer assessment fosters collaborative learning by encouraging students to engage in peer interaction and mutual support, thus creating a conducive environment for collective knowledge construction [3,7].

Research suggests that collaborative learning environments promote active engagement and deeper understanding of the subject matter [50]. By working together to assess and provide feedback on each other's work, students gain exposure to diverse perspectives and alternative approaches to problem-solving [51,52].

Collaborative learning enhances students' communication and interpersonal skills as they articulate their thoughts, understand others' viewpoints, and engage in constructive dialogue [48,53]. Through collaborative interactions, students learn to negotiate meaning and collectively build upon each other's ideas [54].

Additionally, collaborative learning experiences contribute to the development of teamwork and leadership skills, preparing students for success in collaborative work settings [53,55]. By participating in peer assessment activities, students learn to work effectively in teams and leverage each other's strengths to achieve common goals [56].

#### *1.1.6. Reduced Teacher Workload*

Incorporating peer assessment into the learning process not only benefits students but also helps reduce the workload for instructors. By involving students in the evaluation process, teachers can delegate some of the assessment responsibilities, thereby freeing up valuable time and resources to focus on other aspects of teaching and providing personalised feedback [7].

Research indicates that peer assessment can significantly reduce teacher workload by distributing the evaluation task among students [3,7,42]. As students engage in reviewing and critiquing their peers' work, they take on an active role in the assessment process, sharing the responsibility with the instructor [3]. This collaborative approach not only lightens the workload for teachers but also fosters a sense of ownership and accountability among students for their own learning outcomes [7].

Peer assessment allows teachers to focus their efforts on providing targeted feedback and guidance to students based on the insights gained from peer evaluations [33,43]. Instead of spending extensive time grading individual assignments, instructors can devote their attention to addressing common areas of weakness identified through peer assessment [33]. This targeted feedback can be tailored to meet the specific needs of students, facilitating their learning and development [7].

#### *1.2. Challenges of Peer Assessment*

While peer assessment offers numerous benefits, there are some potential concerns associated with employing peer assessment in educational settings [46].

##### *1.2.1. Inconsistency in Feedback Quality*

The variability in the quality of feedback provided by peers can pose challenges in ensuring the effectiveness of peer assessment activities [46,57–59]. While some students may offer insightful and constructive criticism, others may provide superficial or inadequately reasoned feedback [3,13]. This inconsistency in feedback quality can result in disparities in the level of constructive criticism and accuracy of assessments, impacting the overall reliability of the peer assessment process [41,60,61].

There is a risk that students receiving poorer feedback may be unfairly disadvantaged, as they may not receive the necessary guidance for improvement [1]. This underscores the potential need for more targeted feedback towards students who receive lower-quality feedback, ensuring they receive adequate support to enhance their skills and understanding [43,62]. Evaluating the quality of feedback can be challenging, especially considering the time-saving benefits for teachers [63]. Teachers may need to devise strategies for assessing feedback quality, such as providing rubrics or guidelines for peer reviewers, or conducting periodic checks on the feedback provided [38,64]. However, it is crucial to strike a balance between efficiency and thoroughness to ensure students receive meaningful feedback that supports their learning [21]. While time-saving measures are important, they should not compromise the thorough review and assessment of student work [21,65].

### *1.2.2. Bias and Subjectivity*

The subjective nature of peer assessment introduces the risk of bias, as peers may be influenced by personal preferences, prejudices, or preconceived notions [3,66]. Biases based on factors such as race, gender, or personal relationships can affect the fairness and objectivity of evaluations, leading to potentially unfair assessments or overlooking important aspects of the essay [5,67].

### *1.2.3. Expertise Challenges*

One of the primary challenges of peer assessment is the potential lack of expertise among peers, particularly in complex subject areas [17,68]. Peers may not possess the same level of knowledge or proficiency as instructors, making it difficult for them to provide accurate assessments or meaningful feedback [46,52,57,69]. This limitation can undermine the reliability and validity of the assessment process, particularly in disciplines that require specialised expertise.

### *1.2.4. Perspective Constraints*

Peers may have a limited understanding of the assessment criteria or the broader context of the assignment, which can impact the thoroughness and depth of their evaluations [3,70]. Without a comprehensive understanding of the criteria or the goals of the assignment, peers may offer incomplete or superficial assessments of the essay, potentially overlooking important elements or aspects of the work [46,71,72].

### *1.2.5. Negative Impact on Self-Esteem*

Harsh or overly critical feedback from peers can have a detrimental effect on students' self-esteem and confidence in their writing abilities [53,73,74]. Negative feedback that is not constructive or supportive may discourage students from further engagement with the writing process, leading to feelings of inadequacy or demotivation [13,75]. This can ultimately hinder students' academic progress and development as writers.

### *1.2.6. Social Dynamics*

Peer assessment may be influenced by social dynamics within the classroom, such as friendships, rivalries, or cliques among students [48,76]. These social dynamics can impact the fairness and accuracy of evaluations, as students may be inclined to favour or criticize their peers based on personal relationships rather than objective criteria [46,57]. This can undermine the integrity of the peer assessment process and compromise the reliability of the feedback provided.

### *1.2.7. Time Constraints*

Conducting peer assessment requires additional time and coordination among students, which can be challenging to manage within the constraints of a course schedule [53]. Coordinating peer assessment activities, providing feedback, and revising essays can be time-consuming for both students and instructors, potentially detracting from other learning objectives or activities [13,77]. Moreover, time constraints may limit the depth or thoroughness of peer evaluations, leading to rushed or superficial feedback [70].

### *1.2.8. Training Needs*

Students may require training and guidance on how to provide effective feedback and assess their peers' work accurately [3]. Without adequate training, students may struggle to understand the assessment criteria or provide meaningful feedback, compromising the reliability and validity of the peer assessment process [17]. However, providing comprehensive training for peer assessment can pose logistical challenges for instructors, particularly in large classes or courses with limited resources [57].

### *1.2.9. Accountability and Ethical Integrity*

Accountability and ethical concerns are integral aspects of the peer assessment process that require careful consideration [46,48,78]. Without robust accountability measures, students may not take the peer assessment process seriously, leading to superficial feedback and undermining its effectiveness [5,71,79]. Moreover, the absence of accountability increases the risk of unethical behaviour, such as

plagiarism or cheating, during the assessment process [10,46,53]. Addressing ethical concerns related to privacy, confidentiality, and academic integrity is crucial [13,46,71,78]. Safeguarding the anonymity of peer assessments and protecting the integrity of students' work are paramount [46,57,80]. Clear guidelines and expectations regarding ethical conduct must be established to prevent instances of misconduct and ensure the reliability of the peer assessment process [10,72,78].

### *1.3. Aims*

This study seeks to assess how peer assessment influences first-year undergraduate students' understanding of essay writing criteria in the Chemistry Molecules in Action module. By analysing data collected through anonymous online surveys, the research aims to uncover the challenges and benefits linked with peer assessment. Ultimately, by providing insights into student perspectives, this study aims to contribute to ongoing discussions about the effectiveness of peer assessment and pedagogical strategies in higher education.

## **2. METHODOLOGY**

### *2.1. Course Structure*

Molecules in Action is an open module comprising five lecture courses covering topics such as nuclear chemistry, the effects of drugs on individuals, light sources, the significance of chemicals, and the chemistry of water. The module spans two terms and features a comprehensive assessment structure. This includes two summative assignments—one for each term—comprising both an essay and a video presentation. Additionally, there is one formative assignment, specifically in term one, which entails a short essay followed by peer assessment. This study focuses specifically on evaluating the effectiveness of the peer assessment component within the formative essay.

### *2.2. Participant Selection*

Out of the 162 first-year undergraduate students enrolled in various departments, including chemistry, biology, mathematics, physics, psychology, history, and natural sciences, all taking the Chemistry Molecules in Action module, 44 participated in the study, representing 27% of the entire module cohort. The participant pool included both domestic and international students. Domestic students were classified as those with UK citizenship or permanent residency, while international students were those who came from other countries to pursue studies at a British university.

### *2.3. Procedure*

All participants were required to write a 700-word essay on the topic 'Why do we use salt to grit roads in winter time?' Following this, students were provided with explicit marking criteria and instructed to conduct peer assessments on two randomly assigned essays from their peers using the Blackboard peer review system. Anonymity was ensured throughout the process to prevent students from identifying the authors of the essays they assessed and to shield them from knowing who evaluated their own work. Additionally, standardised assessment rubrics were provided to simplify feedback provision.

Before starting the essay writing task, students underwent a one-hour training session focused on essay writing techniques and assignment requirements. Following the completion of their peer assessments, students participated in a one-hour workshop dedicated to discussing their essays and the feedback they received from their peers, aiming to demonstrate effective utilisation of peer feedback and enhance their essay writing skills.

The entire activity was designed to be formative, providing students with learning opportunities and room for improvement without affecting their grades.

### *2.4. Data Collection*

After the peer assessment activity, an anonymous online survey was conducted using Qualtrics XM, an online survey software. The survey link was disseminated through the internal email system to all students enrolled in the Molecules in Action module. The survey was active from March 1, 2024, to

March 15, 2024, with two reminder emails sent during this period to encourage participation. Ethical approval was granted by the Ethics Committee of the Chemistry Department at Durham University (CHEM-2024-0197-241).

The survey consisted of 10 questions. The initial question focused on obtaining consent from participants, ensuring their voluntary involvement. Subsequently, the second question sought information regarding participants' gender, while the third question aimed to identify their student status.

The remaining questions were centred around peer assessment and participants' experiences with this practice. These inquiries delved into various aspects of peer assessment, including its effectiveness, challenges encountered, and perceived benefits.

### 2.5. Data Analysis

Microsoft Excel was used for descriptive statistics analysis of the quantitative data obtained from the peer-assessment evaluation survey.

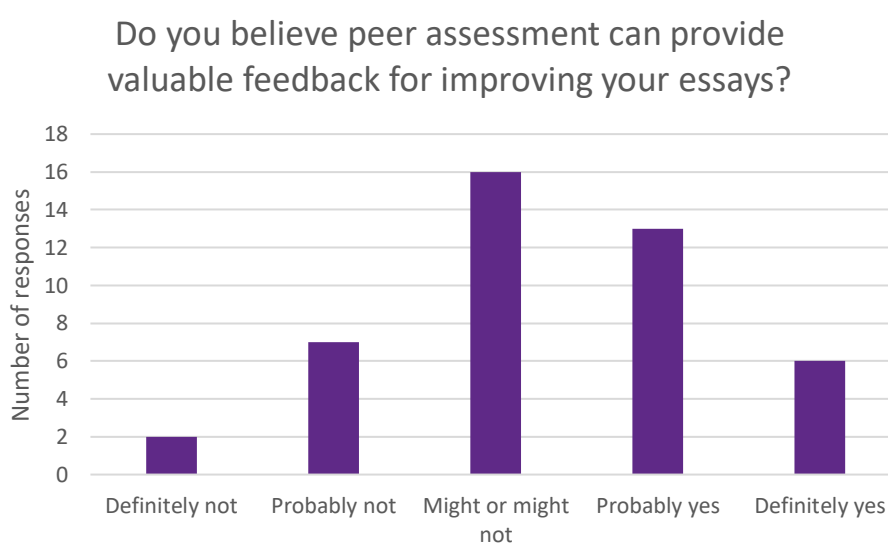
Qualitative data obtained from the open-ended questions of the survey were analysed thematically to identify common themes and patterns in students' perspectives on the self-assessment process and its application as support for training and preparation of essay writing. These themes were then used to develop a deeper understanding of the factors that influence student self-assessment.

## 3. RESULTS

### 3.1. Analysis of Survey Responses

#### 3.1.1. Do you believe peer assessment can provide valuable feedback for improving your essays?

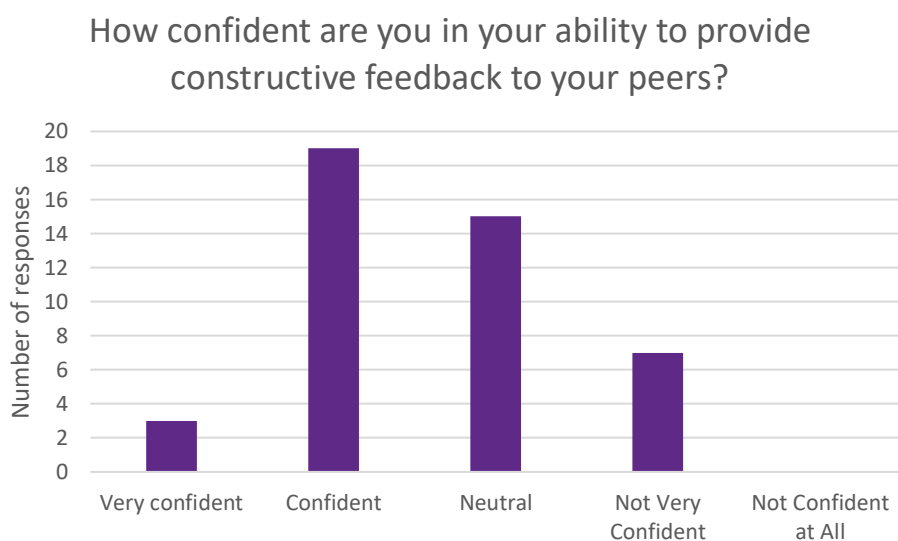
The analysis of responses to the question in **Fig. 1** reveals varying perspectives among respondents regarding the effectiveness of peer feedback. Out of the total respondents, 13 expressed confidence that peer feedback probably aids in enhancing their essays, while 6 respondents clearly admitted its positive impact. On the other hand, 16 respondents indicated uncertainty, suggesting that peer feedback may or may not be beneficial. Additionally, 7 respondents expressed skepticism, stating that peer feedback probably would not contribute to essay improvement, while 2 respondents firmly believed it would not be helpful.



**Fig. 1.** Distribution of ratings indicating the perceived value of peer assessment feedback for essay improvement.

### 3.1.2. *How confident are you in your ability to provide constructive feedback to your peers?*

The analysis of responses to the question in **Fig. 2** illustrates the distribution of respondents' confidence levels regarding their capacity to offer constructive feedback. Among the respondents, a minority of 3 individuals reported feeling very confident in their ability to provide constructive feedback. A larger group of 19 respondents expressed confidence in their feedback-giving skills. However, 15 respondents remained neutral, indicating neither strong confidence nor its absence. On the other hand, 7 respondents admitted to lacking confidence in their ability to provide constructive feedback. None of the respondents indicated having no confidence at all in this regard. This distribution of responses underscores the varying degrees of self-assessed competence among participants in offering constructive feedback to their peers.



**Fig. 2.** Distribution of confidence ratings for providing constructive feedback to peers.

### 3.1.3. *Have you had any prior experience with peer assessment?*

The analysis of responses to the question in **Fig. 3** reveals varied levels of previous engagement with peer assessment among participants. Specifically, 8 respondents confidently affirmed having prior experience with peer assessment, while 10 respondents indicated a likelihood of previous involvement. Additionally, 2 respondents expressed uncertainty regarding their past engagement with peer assessment, acknowledging the possibility of prior experience but not definitively confirming it. In contrast, the majority of 19 respondents reported a probable lack of prior experience with peer assessment, suggesting minimal or no involvement in such activities. Furthermore, 5 respondents clearly stated that they had no prior experience with peer assessment. This distribution of responses highlights the diverse backgrounds and levels of exposure to peer assessment among the surveyed participants.



**Fig. 3.** Distribution of ratings regarding prior experience with peer assessment.

#### 3.1.4. *What support or resources do you feel would be helpful for participating in peer assessment effectively?*

Respondents highlighted the need for support and resources to effectively engage in peer assessment. They expressed a need for clear guidance and examples, such as marking schemes, model answers, and well-written peer assessments, to aid their understanding. Emphasis was placed on the importance of having transparent criteria and guidelines to follow ('Being given a detailed marking scheme or a model answer to compare peers' answers with. Otherwise, it can feel difficult to criticise other people's work with confidence').

The importance of training sessions or workshops at the beginning of the year was also highlighted, with suggestions including sessions on constructing feedback, including what to include and avoid. A student suggested a 'workshop at the start of the year that gives information on things that are useful to look out for when writing an essay and what to pick up on when peer assessing'. Another recommendation was for 'training sessions, a 'how-to' guide of how to construct the feedback, potential points to include, what to avoid etc,' emphasising the need for structured guidance.

Participants stressed the significance of gaining practical experience in peer assessment and receiving feedback from both peers and instructors. They expressed a desire for more opportunities to practice and receive guidance on providing constructive comments ('The primary thing required is experience... doing it for the first time on something else other than the essay could be helpful').

Some respondents mentioned the need to compare their feedback with that of professors or tutors ('It would help to be able to compare the feedback we give to a peer with the feedback a professor gives'). They suggested providing examples of both peer and tutor feedback to help them understand the differences and improve their own assessment skills.

A subset of respondents emphasised the importance of making peer assessment a regular practice and setting clearer guidelines for evaluation. They suggested having pre-sessions to clarify expectations and ensure consistency among students. The idea of making peer assessment 'a more regular thing and set clearer guidelines for how to judge people's work so that it is less varying from student to student' was proposed to foster consistency and fairness.

Finally, a few participants mentioned the need for a better understanding of why peer assessment is more useful than standard assessments. They suggested providing explanations or resources to help students grasp the significance of peer evaluation ('Provide an understanding of why it's more useful than standard assessments').

*3.1.5. How do you think peer assessment compares to feedback provided by instructors or tutors?*

Respondents to the peer assessment process expressed a preference for feedback from instructors or tutors over peer assessment, citing several reasons for their belief. They pointed out that instructors possess a deeper knowledge of the subject matter, which enables them to provide more relevant, informative, and consistent feedback. For instance, one participant mentioned, 'feedback from instructors is always likely to be more relevant, informative and useful - after all, they are the ones who are going to mark it', highlighting the perceived superiority of instructor feedback due to their expertise and role in the final evaluation.

Participants noted that the quality of peer assessment feedback can be highly variable. While some found it beneficial, especially for gaining insights from peers with a similar level of understanding, others criticised it for being vague, uncertain, or overly positive. This variability was encapsulated by a respondent who observed, 'peer assessment is very variable, some feedback was thorough and helpful, whilst other feedback was very brief. Instructor feedback is generally more consistent'.

The importance of trust and experience in the provision of feedback was emphasised by respondents. They expressed concerns about their peers' ability to offer constructive criticism and suggested that feedback from instructors or tutors is more trustworthy due to their expertise and experience in marking assignments ('Personally, I would trust it less, and I think people would agree, because instructors/tutors generally know what they're talking about more so than students').

Some respondents stressed the significance of understanding assessment criteria in providing effective feedback. They suggested that instructors are better equipped to assess work against established criteria, while peers may lack this knowledge ('If the peer reviewer doesn't know what the essay is meant to be like then they can't give good feedback, tutors know what a good essay contains').

Despite criticisms of peer assessment feedback, some respondents acknowledged its value for the peer reviewer. They recognised its potential for enhancing understanding of assessment criteria and providing an initial review before receiving feedback from instructors ('It is not as valuable as feedback from instructors but is useful for the peer giving feedback and can be a good indicator before getting solid feedback').

*3.1.6. What challenges do you anticipate facing when participating in peer assessment for formative essays?*

Several participants expressed challenges related to understanding the criteria for assessing others' work. They mentioned difficulty in comprehending what constitutes a good essay and how to evaluate peers' essays against unclear criteria. For instance, one participant stated, 'can't really understand the criterions of assessing others', highlighting the confusion around assessment standards. Another added, 'not knowing what is an example of a good essay to compare it to', indicating the need for clear examples to benchmark against.

Respondents noted the subjective nature of assessing essays, which can lead to contradictory opinions and unhelpful feedback. This was encapsulated by a participant's observation that 'wording/structure can be subjective and therefore one may receive multiple contradictory opinions - not helpful'. The variability in effort also affects the quality of feedback, as one respondent mentioned, 'feedback you get is always dependent on how much effort the other person puts in - sometimes it's not a lot'.

Some participants expressed doubts about their ability to provide valid and constructive feedback. They cited a lack of confidence in their understanding of essay requirements and structure, leading to uncertainty in feedback provision. 'Giving feedback that isn't valid', and 'whether my feedback will actually be useful to the person that wrote the work I'm assessing', were concerns that underscored this uncertainty.

Challenges related to the repetitiveness of providing feedback and the lack of engagement from peers were mentioned. Participants found it challenging to maintain interest and motivation when faced with repetitive tasks and when peers did not fully engage with the assessment process. 'Sometimes when doing many it is quite repetitive and I find it hard to rewrite different things', one participant noted,

while another highlighted, 'the lack of feedback received for peers who do not fully engage with the peer assessment'.

Participants identified their limited experience and knowledge in essay writing as a significant challenge. They expressed concerns about their ability to judge essays effectively and provide constructive criticism without a sufficient understanding of essay requirements and academic writing conventions. 'Not had any experience in essay writing myself so it is hard to judge other people's essays', and 'not having a good enough understanding of essays to give appropriate constructive criticism', were statements that reflected these concerns.

Respondents highlighted the need for more guidance and support in providing effective peer assessment feedback. They expressed a desire for clearer instructions, examples, and resources to help them understand assessment criteria and improve their feedback provision skills. 'Some feedback has been incorrect about structure and referencing so more guidance would be helpful', and 'need more support how to look at academic journals efficiently', were suggestions for improving the peer assessment process.

Concerns about providing incorrect feedback and the potential consequences of inaccurate assessments were mentioned by some participants. They expressed reluctance to provide feedback that may not be helpful or could negatively impact their peers' work. 'That I don't have the right level of experience and don't want to provide incorrect feedback', and 'no challenges just that the feedback I give may be wrong as I am only as good as my own writing', encapsulate the apprehension around the impact of their feedback.

#### *3.1.7. What benefits do you expect to gain from engaging in peer assessment for formative essays?*

Participants expected that engaging in peer assessment would help them produce higher-standard essays that closely aligned with assessment criteria. They anticipated gaining a clearer understanding of what constituted quality work and identifying areas for improvement in their own assignments. As one participant expressed, 'produce a higher standard essay that is more conforming to the criteria,' while another noted the opportunity to 'better understand what makes a good piece of work'.

The process was also seen as a means to gain diverse perspectives and insights on their work, which participants believed would bolster their critical thinking and analysis skills. The value of receiving non-judgmental feedback from peers was particularly emphasised, with one respondent appreciating 'critical feedback which is non-judgmental as it comes from peers who have done the same essay'. This type of feedback was expected to help participants identify overlooked details and encourage self-reflection. Another participant highlighted its benefit, stating, 'helps to spot details that you have missed which others engaging in the same task might spot and point out'.

Exposure to various writing styles and approaches to essay questions was another anticipated benefit. Participants looked forward to learning from their peers' essays, identifying errors or weaknesses in their own writing style, and gaining inspiration for future responses. This was encapsulated by a participant's observation that peer assessment 'allows me to see other styles of writing an essay and it allows me to spot errors or weak points in my own writing style'.

Engaging in peer assessment was also seen as an opportunity for self-assessment by comparing one's work with that of peers. This comparison was expected to provide insights into strengths and weaknesses and identify areas for improvement. One respondent mentioned, 'compare work between peers allowing us to grow off of each other's mistakes to ensure they don't happen again', highlighting the collaborative learning aspect of peer assessment.

The diverse perspectives and ideas offered by peers were valued for their potential to help participants develop fresh approaches to questions and expand their thinking. The opportunity to learn from peers' insights and experiences was seen as invaluable, with one participant noting, 'diverse thought from the peers'.

Participants anticipated that through engaging in peer assessment, they would develop skills in peer reviewing and providing feedback. This skill was recognised as valuable for future academic and

professional endeavours, with one respondent stating, "experience in peer-reviewing, and it can be useful to reflect about how you write as well by analysing an essay that is not your own". Some respondents saw the benefits of peer assessment extending beyond the current assignment, viewing it as a valuable skill for future academic and professional activities, as another participant reflected, 'useful for later in life'.

## **2. DISCUSSION**

The analysis of survey responses illuminated the diverse perspectives among participants regarding the effectiveness of peer feedback, reflecting a range of experiences, beliefs, and expectations.

Some respondents were confident in the value of peer feedback, viewing it as a significant enhancer of their essays. This group likely had positive experiences with peer assessment or believed in the benefits of collaborative learning [3,52,81]. They saw peer feedback as an opportunity to gain insights, receive constructive criticism, and improve their writing skills [72,82].

Conversely, other respondents were uncertain about the benefits of peer feedback. This uncertainty could stem from limited experience with peer assessment, negative past experiences [52,81,83], or factors such as unclear expectations and inconsistent feedback [4,70]. These individuals might also prefer expert feedback, leading to scepticism about the quality of peer input [49,68,70].

A minority of respondents doubted the usefulness of peer feedback for improving their essays, often holding strong convictions about the superiority of instructor or expert feedback [68,81,84]. They might view peer feedback as less reliable or valuable compared to that from instructors or tutors [21,46,70,81], possibly due to a lack of trust in peers' abilities or concerns about bias and subjectivity [85,86].

The survey revealed varying levels of engagement with peer assessment, from active involvement to minimal engagement [1,3,87]. This variation underscores the need for tailored support and resources to meet participants' diverse needs [46,83,88], fostering a supportive environment that encourages participation and builds confidence [89,90].

Confidence levels among participants in their feedback-giving skills also varied [4,13]. Discrepancies in confidence could be due to differences in experiences, training, or familiarity with assessment criteria [91]. This highlights the importance of providing support and interventions to enhance participants' trust and effectiveness in peer assessment [3,46,92].

Participants voiced concerns about their ability to provide meaningful and constructive feedback, with some expressing uncertainty about their capacity to do so [3,70,93,94]. This lack of confidence, especially among those with limited experience or knowledge in essay writing, might hinder their engagement in peer assessment and their willingness to provide substantive feedback [52,70].

Anticipated challenges in engaging in peer assessment included understanding assessment criteria, with many participants concerned about accurately interpreting and applying these criteria [95]. The subjectivity inherent in feedback provision was also recognised [1], with the potential for conflicting feedback undermining reliability and consistency.

Repetitiveness was another anticipated challenge, as repeated engagement in peer assessment could lead to monotony and decreased motivation, potentially affecting the quality of feedback [4,10,96].

Limited experience and knowledge in essay writing were identified as challenges, with concerns about the ability to effectively assess essays without a strong understanding of academic writing conventions [97].

In response, participants emphasised the need for clear guidelines, examples, and support mechanisms to improve the peer assessment process [46,71,98,99]. Clear guidelines and examples could provide structure and reference points, while support such as training sessions could develop assessment skills and build confidence [60,64,100].

Despite these challenges, participants anticipated benefits from engaging in peer assessment. They expected to refine their writing skills, enhance critical thinking by evaluating peers' work, and gain exposure to diverse perspectives and approaches [1,46]. They also recognised the development of communication, critical reading, and evaluation skills, as well as the long-term utility of peer assessment skills for future academic and professional endeavours [101].

### 3. CONCLUSIONS

Peer assessment in essay writing is recognised as a valuable educational tool that not only enhances student learning by encouraging critical analysis and effective writing techniques but also fosters critical thinking, self-reflection, teamwork, and readiness for real-world scenarios [1,27,69,102]. It reduces teacher workload and equips students with skills valuable for their future, thereby enhancing learning outcomes and fostering inclusivity in education [3,7,13,103].

However, acknowledging the study's limitations is crucial. The reliance on survey responses might not fully capture the complexity of individuals' attitudes and experiences, and the focus on perceptions rather than objective measures could limit the generalisability of the findings. Future research should aim to incorporate more objective measures, such as comparing outcomes of peer-assessed assignments with those assessed by instructors, to gauge the effectiveness of peer feedback more accurately.

The diverse perspectives on peer feedback highlight the complexity of assessment practices and the need for a supportive environment to maximise its benefits [33,70]. Educators are encouraged to tailor their approaches by providing clear guidelines and targeted support to meet learners' diverse needs. The anticipation of benefits underscores peer assessment's role in nurturing skills essential for academic and professional success [3,71].

To enhance engagement and address challenges, it is imperative to provide resources such as clear guidelines, illustrative examples, and comprehensive training sessions. Despite some preferences for instructor feedback, the recognised benefits of peer assessment—improved essay quality, enhanced critical thinking, and exposure to diverse perspectives—underscore the need for focused support to optimise these advantages [10,46,100].

In response to feedback, we plan to introduce a two-hour workshop focused on effectively utilising peer feedback and emphasise its benefits and implementation in the upcoming academic term. Future initiatives will include organising comprehensive training sessions, exploring hybrid models of peer and instructor feedback, and conducting longitudinal studies to assess the long-term impact of peer assessment. Further research will also explore its effects on underrepresented groups and investigate technological solutions for optimisation, aiming to create a more effective learning environment through peer assessment.

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