Giving or receiving feedback: which is more beneficial to student' learning?

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Abstract

Assessment is a key component of the education process and strategies involving peer feedback are considered beneficial to student learning. The study aims to analyse the benefits giving and receiving feedback have for students' development of cognitive and metacognitive, affective and professional competences. 188 students enrolled in teacher education answered a survey. Results indicate that after providing feedback, the students perceived a better learning experience and an increased sense of commitment to their own learning and their colleagues' progress. The present study clearly supported the role of students in their own learning. As most participants recognised, more learning occurred when providing feedback, which is a clear indicator that students want to assume an active role in their own learning and consider their involvement critical in the design of teaching and learning experiences. To achieve the greatest advantages, feedback must be accompanied by tutoring and mentoring to ensure positive connections with the task, address doubts and clarify the comments received.

Keywords: peer feedback, learning, assessment, professional skills, social skills

Introduction

In the constructivist approach to education, assessment is a key component of learning and teaching activities required for the reflective construction of knowledge. Thus, strategies that entail peer assessment are commonly used in higher education and have greatly impacted assessment procedures (Gielen & De Wever, 2015). Peer assessment is a central principle of formative assessment and is linked to the notion that assessment is critical for learning (Panadero & Brown, 2017).

The "learning element of peer assessment" is represented by peer feedback (Liu & Carless, 2006, p.1). Peer feedback transforms the role of students and requires students to target, generate and interpret feedback while communicating and engaging with each other (Author, 2017). This method includes qualitative comments involving groups of students or peers and benefits student learning by increasing accountability, encouraging reflection and assessing their own or their peers' performance, and developing evaluative expertise (Harris & Brown, 2013).

Peer feedback has been shown to be beneficial in many learning situations, particularly for those receiving comments from tutors and peers (Van den Hurk, Houtveen, & Van de Grift, 2016, etc.). However, the benefits of peer feedback to the reviewer, i.e., the student providing the feedback, has not been thoroughly investigated in the field of teacher education.

This study explores the perceived benefits in terms of learning achievements, self-regulation of learning, conception of assessment and social competencies in peer feedback group experiences by comparing the assessors' and assessees' perceptions of the feedback.

Peer feedback and its benefits to student learning

Peer-assessment processes are increasing in popularity in tertiary educational institutions given their potential to contribute to a student-centred approach to learning (Simpson & Cliford, 2015).

Feedback is derived from a vision of teaching that prioritises the formative and continuous nature of assessment, which has been revealed to facilitate student learning, enable students to become active, responsible and reflective practitioners, improve the quality of learning and provide formal accountability and accreditation of knowledge (Quinton & Smallbone, 2010).

Peer feedback is provided by equal status learners and can be considered both a form of formative assessment, i.e., the counterpart of teacher feedback (Topping 1998), and a form of collaborative learning (Van Gennip, Segers, & Tillema 2010, etc.).

In this study, peer feedback is considered to rely upon social constructivism, which, as proposed by Vygotsky (1978), is the joint construction of knowledge through discourse and other types of interactions in which communication and social skills are implicit. The Vygotskian concept of scaffolded learning presumably depends on whether the peer assessor merely identifies weaknesses in the assessed work or also identifies strengths and provides recommendations for improvement. In addition, we related peer feedback to the Piagetian model of cognitive conflict, which involves students who have equal status (Ibarra, Rodríguez & Gómez, 2012) but different levels of competence. Thus, a negotiation occurs between the students and their knowledge (Wen, Tsai & Chang, 2006).

Feedback is linked to formative assessment, and numerous studies have illustrated the conditions and benefits of feedback as an assessment process based on defined criteria (e.g., Bollag, 2006; Leahy, et al. 2005). Formative feedback represents information which enables students to form a series of expectations about themselves and their decisions, which influences their own practices (Shute, 2007). To obtain maximum benefits, the feedback must be related to one or more aspects of the learning, a product (work), the process (what has already been achieved) and the progress recorded (improvement over time) in the student's learning (Stiggins, 2008, etc.).

Peer feedback is particularly beneficial to student learning, and in this line, Panadero & Dochy (2014) and Gielen & De Wever (2015) show that students enhance their learning experiences not only when they receive feedback but also when they provide feedback to their peers by providing an intermediate assessment of the performance against criteria accompanied by feedback regarding strengths, weaknesses and/or suggestions for improvement (Boud & Falchikov 2006). In addition, peer feedback is linked to the development of "work-ready" skills in students (Al-Barakat & Al-Hassan, 2009) and is associated with "authentic learning" (Thomas, Martin, & Pleasants, 2011, etc.). Peer feedback is also associated with the acquisition of higher order thinking skills (Snowball & Mostert, 2013) in Bloom's taxonomy (Bloom & Krathwohl, 1956) and self-regulated learning (Author, 2017, Panadero & Brown, 2017).

Peer feedback can occur in a variety of forms as follows: verbal or written, anonymous or public, individual or team-based, and singular or a component of a feedback loop (Simpson & Clifton, 2015). Peer feedback has been analysed both in individual learning experiences and group

learning settings. In group contexts, the opportunities for students to collaborate productively are widened by emerging forms that promote "a rich dialogue in relation to feedback and peer- and self-assessment activities which, by their nature, place the student at the centre of the educational process as an active participant in constructing knowledge" (Hatzipanagos & Warburton, 2009).

Studies investigating assessment have significantly contributed knowledge regarding the nature of feedback. Recent developments have identified feedforward as proactive feedback (Author, 2016) in which useful information for the immediate and mediate future is provided in both academic and professional contexts. Thus, feedback involves not only detecting and correcting errors but also anticipating and preventing possible mistakes. This process has a clear effect on students' development of competencies. This prospective dimension of feedback suggests that the definition of feedback must expand beyond correction and unidirectional action from teachers providing information regarding the gap between the level of achievement of the current task and the desirable level of development (Boud & Falchikov, 2006). The alternative proposed definition is feedback in which the student plays an active and central role (Carless & Chan, 2016) with clear implications for the students' self-regulated learning. Consistently, Li, Liu & Steckelberg (2010) noted the potential of feedback in the self-regulation of students' actions. Students' self-regulation depends not only on the feedback received but also on the feedback provided and the interaction among peers. Analysing other students' work allows students to interpret the assessment criteria, which leads to an understanding of a good execution and helping students to adjust their actions to meet the expected results.

The role of students in peer feedback

In student-involved approaches to assessment, students are considered active agents who share responsibilities, reflect, collaborate and conduct a continuous dialogue with the teacher or their peers (Kim, 2009).

In the peer-feedback process, the students play the roles of both the assessor and the assessee, and each role has implications for student learning and their cognitive competences. As the assessor, the students are involved in reviewing, summarising, clarifying, providing feedback, diagnosing misconceptions, identifying gaps in knowledge and considering deviations from the ideal (Topping 1998). These tasks are all cognitively and metacognitively demanding activities that can help consolidate, reinforce and deepen the student assessor's understanding (Kim, 2009).

Providing feedback in small groups is beneficial to both the assessor (e.g., Topping, 2009) and the assessee (e.g., Tsivitanidou, Zacharia, & Hovardas, 2011) and represents an excellent opportunity for learning (e.g., Carless & Chang, 2016). In collaborative contexts students clarify their understanding of the topics (e.g., Boud & Molloy, 2013), increases their engagement, and empowers learning (Panadero & Dochy, 2014).

Performing feedback requires peer-assessment skills (Gielen & De Wever, 2015, etc.). As an *assessor*, the learners must be able to recognise and assess criteria, judge the performance of a peer, and eventually provide peer feedback. In contrast, the *assessee* traditionally must "critically review the peer feedback they have received, decide which changes are necessary to improve their work and proceed with making those changes" (Hovardas, Tsivitanidou, & Zacharia, 2014, p. 135). In addition, the assessee's role in most peer-assessment practices has been described in a very passive manner as follows: the assessee's role is usually merely receiving peer feedback (Kim, 2009).

Regarding the social skills, the peer-feedback component of the peer-assessment process can promote active learning and the development of skills related to teamwork, verbal communication, negotiation, and diplomacy (Neugebauer, Ray & Sassenberg, 2016) in both agents. Learning to provide and accept criticism, justify one's position, and reject suggestions are all forms of social and assertion skills. Student engagement in peer-evaluation situations can help facilitate subsequent employee evaluation skills (Author, 2017). In certain projects, peer assessment is targeted as a transferable professional skill; peer assessment can change the students' own views regarding the role assessment in the academic process (Hannaford, 2017).

Despite recent advances in studies analysing the agents involved in peer feedback, the activity of providing feedback is predominantly analysed as a critical factor in learning-oriented assessment. As presented before, most studies have focused on the benefits of peer feedback to the assessee's role and have not focused on the assessor. Therefore, we aim to fill this gap and provide new insights into the role of feedback in the assessor' learning and competency development. In our study, peer feedback was integrated with learning, and providing feedback is considered a key component of learning.

2. Methods

Our study specifically addresses the following issue: In the context of peer feedback, which role, i.e., assessor and assessee, is perceived as more beneficial to learners? To answer this research question, this study examines the relationship between students' perception of learning while

'providing' and 'receiving' feedback with an emphasis on the following areas: (1) cognitive and metacognitive learning, (2) the development of discipline-related and professional academic skills, and (3) academic emotions or other affective aspects.

Setting

The experience was implemented in a mandatory course during the first year of the Bachelor's degree programme in Teacher Education. The feedback provided by the peer team was considered a part of the learning process, and the students were not involved in grading. The quality of the project and peer feedback was assessed by the lecturer.

The students provided peer feedback in a three-part written submission (draft group report), which constituted the final research project. The draft group reports were developed by groups of four to five students over a six-week period. The report was approximately 3000 words in length depending on each of the three assignments. After receiving feedback, the peer group had two weeks to incorporate the suggested changes and submit the final group report. The students were asked to provide their feedback using the "track changes" feature in their word processor software. This feature marks and shows the changes in a document, allowing for a review of the revisions (i.e., comments, insertions, deletions, and formatting and the individuals involved in each revision) at any time.

At the beginning of the process, the lecturers provided a brief training session in which they explained the process, the different types of feedback the students could provide, how the feedback must be provided and how the feedback could be incorporated by the assessee. Furthermore, guidelines for the development of the project were uploaded to the virtual campus. The guidelines for the report contained information about the structure, content, assessment criteria and format details.

To assess the group research projects, students were asked to consider several indicators. These indicators were chosen because they allowed for an analytical and holistic assessment of the following aspects:

I. *Aspects related to the development of the task*: selectivity (the most important aspects of the task are discussed); belonging (refers to the objectives of the task); contextualisation (the feedback comments refer to the evaluation criteria of the task); transfer (referrals can be transferred to other learning situations or practices); balance (refers to both the negative and positive aspects of the task); reflection (focuses on self-regulatory processes); involvement (the peer is invited to reflect upon his/her

involvement in the activity performed); and acquisition of competencies (refers to the development of subject competencies).

II. *Formal aspects*: linguistic correction and mechanics (refers to clarity, spelling, punctuation, and general formatting) and structure (refers to coherence, the use of vocabulary and the unity of ideas).

III. *Emotional aspects:* motivation (encourages advancement); reinforcement of self-esteem (highlights and encourages strengths); and, assertiveness (provides security and firmness in one's own assessment regardless of whether it is negative or positive but in a balanced way).

The process of the feedback is illustrated in the following graph:

FIGURE 1 INSERT HERE.

Instrument and measurements

In this study, peer feedback was considered under the theoretical framework of social constructivism, which describes the joint construction of knowledge through discourse and other interactions between the assessor and assessee, with implications for both roles. Communication and social skills appear to be implicit, and communication between agents leads to the development of internal processes as proposed by Vygotsky (1978). Considering the Vygotskian concept of scaffolded learning, we designed an online questionnaire using the SurveyMonkey platform entitled “Peer evaluation strategies and feedback” (EAIF, after its Spanish acronym). The questionnaire design considers the mechanisms through which peer feedback might generate its effects. The domains included in the questionnaire are as follows:

1. The impact of peer feedback on *cognitive and metacognitive student development* (peer feedback leads to comparisons, reflection, contrasting, communication skills, considering deviation from the standards, and learning through models).
2. The impact of peer feedback on *the development of social skills and competencies* (i.e., development of group work skills, active learning, acceptance of criticism, argumentation, and assertiveness).

3. The impact of peer feedback on *future professional skills*. This domain includes aspects related to the impact of peer assessment on the students' perception of the assessment competencies, their level of confidence in the assessment, their level of confidence in their peers, and conceptions of future professions.
4. The impact of peer feedback on *the development of affective features* (i.e., anxiety, sense of belonging, personal responsibility, and level of acceptance of negative comments).

Sample

In total, 248 students were enrolled in the degree programme and participated in the peer-feedback experience. The study sample consisted of 188 students (80.3% female), who consented to participate in the research study. The sample size calculation was performed retrospectively considering a 95% confidence level for finite populations (p and q=0.5), indicating that the margin of error was $\pm$0.035. The participants ranged in age from 18 to 39 years old (M=19.74; SD=2.735).

Procedure and data analysis

The questionnaire was completed in class after the experience had occurred at the very end of the course in May 2017. The questionnaire was administered to the students who were in class at that time, which allowed for the attainment of a representative sample and the use of exhaustive questionnaires with complex questions while avoiding the non-responders (Torrente & Bosch, 1993). Once the data were gathered, univariate and multivariate statistical analyses were performed using IBM Statistical Package for the Social Sciences (SPSS v.20) and Système portable pour l'analyse des données (SPAD_N v.5.6).

3. Results

The results are organised in different sections as follows: first, we provide a general overview of the role of feedback in student learning; second, we define "providing" and "receiving" feedback as discriminatory variables; and finally, we explore the implications of feedback for student learning in both roles (assessor and assessee).

According to the data, the students perceived that other students benefitted more from the feedback they provided than they benefitted from receiving feedback. According to the univariate analysis, which was performed to describe the application of peer feedback, the

experience was (1) a useful learning strategy (M=4.68; SD=1.497) and (2) significantly improved their assignments (M=4.61; SD=1.446). As mentioned above, the students believed that despite its significance, the feedback was more useful in improving the tasks of others (M=5.11; SD=1.245) than in improving the tasks performed by their group (M=4.89; SD=1.460). These statements are valued above the midpoint on the scale (4) because the items ranged from 1 to 7. In addition, the difference between providing and receiving feedback was analysed according to the overall assessment of each action, i.e., providing and/or receiving. Indices were obtained by averaging all actions related to providing and receiving feedback. Then, we compared both indices by performing a paired-samples t-test. The difference between the means of the two conditions (providing and receiving) was sufficiently large and was not due to chance. The t-value was positive, indicating that the first condition (providing feedback) had a higher mean (M=4.75; SD=.090) than the second condition (receiving; M=4.63; SD=1.145); thus, we may conclude that *providing* feedback caused significantly more reported benefits than *receiving* feedback ($t_{(183)}$=2.504; p=.013). The results were consistent in the students' responses, and a robust significant correlation was observed (r=.812; p=.000).

The students agreed with the comments they received (M=4.80; SD=1.533) and incorporated these comments to improve their activities and projects (M=5.37; SD=1.348). However, the students' satisfaction with the received feedback (M=4.96; SD=1.600) was lower than that with the provided feedback (M=5.52; SD=1.234). The means appear to be above the midpoint of the scale but are frequently lower in regard to "receiving feedback" likely reflecting their higher expectations of peer feedback.

However, we aimed to carefully examine these benefits and determine the extent to which the students' role as assessors and assessees are perceived to be more beneficial for their learning. The students believed that they learned more by providing feedback (M=3.84; SD=1.640) than by receiving feedback (M=4.02; SD=1.655); thus, we were interested in analysing this difference in greater depth.

Considering 'providing' and 'receiving' feedback discriminatory variables, we performed an analysis using the "criterion variable method" in the programme SPAD_N (Bécue & Valls, 2005; Author, in press). The statistically significant variables identified in the previous analyses appear to have sufficient explanatory power to locate more differences between these processes and thus offer a clearly interpretable profile that helps us learn more about the differences between the role of assessors and that of assessee in peer-feedback processes. In addition, the analysis of these variables provides a deeper understanding of the association between these variables and the perception of 'providing' and 'receiving' feedback. Similar to all multivariate analyses,

this method considers all indicators or variables recorded. The statistical treatment allows for the characterisation of the values (categories) of a variable based on all other variables and considers that each group must be the most homogeneous among its members and the most heterogeneous in relation to the others.

The profiles were obtained from the total scores of the students' perceptions of learning during the exercise of 'providing' and/or 'receiving' feedback.

The characteristics associated with the overall perception of learning are divided into the following groups: students as "assessors", students as "assessees", and "ambivalent" students.

During the data analysis process, we realised that the variables linked to the questions "I have learned more by giving feedback than by receiving it" (Item 7.2 of the questionnaire) and "I have learned more by receiving feedback than by giving it" (Item 7.3) showed internal consistency (as initially expected). Students who were more in agreement with having learned more by providing feedback were, in turn, less in agreement with having learned more by receiving feedback, and vice versa. However, we also identified that several students did not follow this pattern of linearity, and therefore, we chose to create three groups based on this result. The students were classified as students who said they learned more by providing feedback (designated "assessors"); students who said they learned more by receiving feedback (designated "assessees"); and students whose responses showed a lack of coherence between these two variables (designated "ambivalent"). Then, we performed a profile analysis based on these three groups. Subsequently, we completed our analyses by considering criterion variable items 7.2 and 7.3 and creating groups of high and low perception of learning. The following sections present the results obtained based on these statistical analyses.

Students as "assessors"

In this profile (23.4% of the sample; n=44), the students are not satisfied with the peer-feedback experience likely because of their high expectations. These students are neither satisfied with the feedback received (p=.028) nor with the comments provided by their colleagues regarding their work (p=.004).

The students with this profile could be called "assessors" because they believe that they have learned more by providing feedback than by receiving feedback (p=.000). However, their answers do not significantly correlate with variables related to the impact of the peer-assessment activity in terms of the development of academic and professional skills, the improvement of metacognitive or cognitive learning, and other affective aspects.

In their profile, multiple statistically significant correlations linked to the evaluation of feedback as an activity are observed, showing that these students are dissatisfied with variables related to the benefits they should have obtained from to the implemented activity. These students do not believe that providing feedback was useful or meaningful for improving their work (p=.034). These students also feel that the impact of the peer-provided feedback did not increase their confidence with others (p=.001) or improve their acceptance by others (p=.024).

In the following table (Table 1), the statistically significant correlations that have emerged in this profile are shown:

TABLE 1 INSERT HERE

Considering our partial analyses, the values of questions 7.2 (*I have learned more by providing feedback than by receiving feedback*) and 7.3 (*I have learned more by receiving feedback than by giving feedback*) as the criterion variables, and cases in which ambivalent answers were detected in both questions, the results more clearly depict the benefits of assuming the role of the 'assessor'. The students who agreed that they learned more by providing feedback (32.45% of the sample [n=188]; n=61) stated that being the assessors has helped them better understand their future tasks (p=.031). The assessor role has also enabled these students to become aware of the responsibility of evaluating others (p=.021) and being more assertive (p=.021). These two elements imply that this role contributes to the development of certain competencies and affective skills. Despite these positive implications, the opposite task (i.e., receiving feedback) has caused anxiety in these students (p=.012).

Students as 'assessees'

This group (33.51% of the sample; n=66) constitutes students who believe that they have learned more by receiving feedback than by providing feedback (p=.000). Overall, the students who identify with this profile are satisfied with the feedback received (p=.004), agree with the comments received from their peers (p=.006), and, as a consequence, have incorporated the feedback to improve their work (p=.046).

In terms of cognitive and metacognitive development, receiving feedback was a useful learning strategy for these students (p=.017) and has enabled these students to learn more actively (p=.004). The peer-assessment process was also helpful in improving the group tasks (p=.017).

Results showing that students consider themselves 'assessees' also highlight the benefits of 'providing feedback' (see Table 2). These students likely consider peer feedback as a part of a continuum in which 'providing' and 'receiving' are processes that feed each other. In contrast to

the previous profile ('assessors'), in this case, these students are satisfied with the experience, which inevitably has implications. The students believe that receiving feedback is important (p=.004) and conclude that feedback provides a significant opportunity to improve the group project (p=.003).

TABLE 2 INSERT HERE

Following the same analytical process described in the previous section, we repeated the analysis using the total score on questions 7.2 and 7.3 as the criterion variables and adding the ambivalence detected cases as previously discussed. As discussed in the previous case, the students perceived that being 'assessees' allowed them to become more aware of the objectives of the subject (p=.042), provide more value to the tasks (p=.027) and understand the importance of using different strategies each time (p=.012).

The profile of the students who agreed that they learned more by receiving feedback (42.55% of the sample [n=188]; n=80) say that being 'assessees' has helped them integrate the subject knowledge (p=.026) and better accept their errors (p=.012). Regarding competencies, receiving feedback has helped these students improve their ability to argue (p=.031), their teamwork competence (p=.0.31) and their ability to communicate more effectively with their peers (p=.033). Receiving feedback also had an impact on the development of other important affective aspects. The students displayed an increased trust in others (p=.000), improved their acceptance by others (p=.017) and reported a greater sense of belonging to the group (p=.025). Interestingly, in contrast to their counterparts from the previous section, the students also believed that receiving feedback has not caused them anxiety (p=.012).

Ambivalent: students who show ambivalence in their answers

We identified another group of students who did not assume the "assessor" or "assessee" role; thus, we designated these students "ambivalent". For certain reasons, these students did not identify with the peer-assessment experience performed in class and did not agree that "providing" or "receiving" feedback had implications for improving their projects and gaining important knowledge and skills. The students with this profile, who constituted a considerable percentage of the sample (43.09%; n=81), devoted little time to the peer-assessment project (p=.029). These students disagreed with the fact that they have learned more by receiving feedback than by providing feedback (p=.000), and simultaneously, they also disagree with the idea of having learned more by providing feedback than by receiving feedback (p=.003). In contrast to the previous profiles, these students firmly believe that the learning achieved by

"providing" and "receiving" feedback is the same (p=.007). These students do not consider receiving feedback more important (p=.025), and furthermore, they are not satisfied with the feedback they have provided to their peers (p=.004).

Regarding the implications of this "ambivalence" in peer assessment (see Table 3), these students do not believe that receiving feedback is a useful learning tool (p=.049) or a tool that can improve group activities (p=.042). Similarly, they do not believe that providing feedback has helped them become more aware of the responsibility of evaluating others (p=.044), which is perhaps closely related to the short time spent on this activity. However, these students believe that the feedback received from their peers has improved their self-esteem (p=.048).

TABLE 3 INSERT HERE

Discussion and conclusions

This study examined the benefits of the roles of assessor and assessee in peer assessment on student learning. During the peer-feedback process, the students assumed different roles, which differentially impacted their learning (Kim, 2009, Li, Liu & Steckelberg, 2010). The incorporation of peer feedback in a group report was considered to have learning benefits for the students by providing the students, who both provided and received feedback, an educational opportunity, and the students agreed that the quality of their learning improved during this experience. Thus, our results are consistent with previous studies, such as the study performed by Simpson and Clifton (2015). Although the students perceived that their learning was more improved by "providing feedback" than by receiving feedback (Lundstrom & Baker, 2009), according to the statistical analyses, their experiences in relation to the role of "assessor" or "assessee" are disparate. Certain students identified with the profile of assessors, certain students identified with the profile of assessees, and certain students showed an ambivalence profile. The implications and experiences of peer feedback vary depending on these roles. The students tend to adopt a role and hold assumptions regarding that role.

The students who identified as "assessors" obtained more from the experience, which impacted the given assignment. Providing feedback is highly associated with improvement in the current task and in transferring the knowledge to future tasks. Thus, the feedback became feedforward (Author, 2016). Providing feedback rendered the students more active and involved in their learning, enhanced their responsibility and commitment to the task, and developed their assertiveness skills. Thus, our study fills a gap in the literature (Topping et al, 2000) and provided new insights into the benefits of providing peer review in student learning. Active involvement by students is directly linked to students' empowerment (Panadero & Dochy, 2014) and has the

potential of contributing to lifelong-learning process and professional skill development (Li, Liu, Steckelberg, 2010). Providing comments to improve their peers' work highlighted the educational benefits of peer assessment and increased positive perception of peer reviewing as a process in which students are appropriately skilled to contribute (Simpson & Clifton, 2015). Students perceived that the feedback helped them improve their argumentative capacity, connect better with their work team and improve their communication skills.

In addition, our study contributes by advancing the discussion regarding the role of received feedback in student learning. The students perceived that receiving feedback helped them improve their projects (Simpson & Clifton, 2015), contributed to the development of cognitive and metacognitive skills (Bautista, Monereo & Scheuer, 2014), enhanced their active learning and commitment to the tasks, had important implications for their empowerment in the learning process (Panadero & Dochy, 2014) and improved their group tasks (Gielen & De Wever, 2015). In addition, receiving feedback is highly associated with the integration of knowledge (Boud & Molloy, 2013) and the acceptance of errors as cognitive aspects involved in the learning process. Establishing a peer-feedback design enables the acquisition of social and professional skills, which are highly connected to their future profession as teachers.

Our study additionally contributes to the understanding of how students learn and the benefits acquired through peer assessment, adding new insights to the literature not only regarding the role of assessors but also regarding the role of assessees. By focusing on the benefits students acquire in each of the roles, our study supports the theory of the active construction of knowledge through student interaction and negates the concept of the passive role of students engaged only in receiving feedback. Moreover, to fully enhance learning, the assessee's role in peer assessment must be articulated to utilise peer assessment as a more effective learning strategy (Kim, 2009).

Peer-to-peer knowledge exchange activities must be accompanied by tutoring and mentoring to ensure that students positively connect with the task and can resolve intra and interpersonal conflicts that distance the students from the implicit benefits of peer-assessment processes.

This study has several practical implications for the field of education, particularly teacher education programmes in higher education. Our study supports that students engaged in the peer-feedback process require specific skills. As reviewers or assessors, the students must be able to recognise and assess particular criteria, judge the quality of their peers' work and make decisions regarding the comments they submit to their colleagues. In contrast, while receiving feedback, the students must critically review the feedback and make decisions regarding the

value and necessity of including the comments and making changes in their work (Hovardas, Tsivitanidou, & Zacharia, 2014), which require high level cognitive capacities, such as summarising, explaining, and identifying errors and gaps in their learning. Due to this complexity, tutors should monitor and guide the students' interventions, create class contexts to facilitate students' interaction and 'dialog' using feedback to maximise the benefits.

The present study clearly supported the role of students in their own learning. As most participants recognised, more learning occurred when providing feedback, which is a clear indicator that students want to assume an active role in their own learning and consider their involvement critical in the design of teaching and learning experiences. However, to enhance this benefit, classroom experiences should facilitate deep involvement in students during all learning and assessment processes to enhance the students' professional future competencies as assessors. The implications of our study are that in the field of teacher education, assessment performed in higher education not only has a critical impact on students' grades but also serves as indirect teaching models for the active construction of professional skills. Thus, assigning students to the role of assessor of their peers and designing instructional interventions that enhance the effectiveness of assessment appear to be critical strategies for promoting the necessary skills in higher education teacher education programmes.

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