Developing feedback literacy in initial teacher education: Results from an investigation

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Abstract

This survey, which involved 258 students of the Primary Education Sciences degree course at the University of Molise, intends to examine the effects of feedback literacy activities in supporting student learning. With this purpose, a qualitative analysis of the reflective narratives contained in the e-portfolios produced by the students during the lessons was conducted. The results demonstrate a particular utility of peer feedback activities in increasing forms of self-assessment and autonomous review of the work performed.

Key words: feedback literacy; peer feedback; self-assessment; e-portfolio; higher education; initial teacher education

1. Feedback: an introductory note

Feedback – as a research topic but also as a teaching approach – is receiving increasing attention both in the international and in the national context. The theoretical aspects have been examined, as well as the elements that make it effective in learning processes such as comprehensibility, credibility of who provides it, reciprocity and the emotional dimension (Rossi *et al.*, 2018, p. 87).

According to Hattie (2009, p. 173), feedback is «among the most powerful influences on achievement». The issue of effectiveness, which remains central, however, is not the only one. Feedback processes allow to rethink a series of

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elements of the didactic action in an integrated way, promoting different forms of planning and management of teaching/learning paths that include evaluation, motivation, self-regulation and reflection.

In this direction, it may be useful to propose a series of conceptual pairs to understand the articulation of the connections that feedback activates: cognition/emotion, transmission/generation, exteriority/interiority.

1.1 Cognition/Emotion

Initially, feedback was defined as «information provided by an agent (e.g., teacher, peer, book, parent, or one's own experience) about aspects of one's performance or understanding» (Hattie, 2009, p. 174): this is functional to overcoming the gap between the existing situation and the one to be achieved.

The quantity and relevance of information are the first element that can make feedback more or less effective. However, the cognitive dimension is only one aspect. Feedback is linked to an emotional and motivational dimension: the emotional state of the recipient of feedback (anxiety, insecurity…) can make it ineffective. Criticisms are remembered more than appreciations and the balance between these elements must be well calibrated, as well as observations relating to the process are better remembered than those centered on the task (Winstone and Carless, 2019).

If «praise, punishment, and extrinsec rewards were the least effective forms of feedback for enhancing achievement» (Hattie, 2009, p. 174), still remains open, in a perspective that takes into account the emotional dimension, the possibility of using some mechanisms and strategies that generate involvement and motivation. In this sense, the use of gamification has already found positive uses (González, 2018; Laici and Pentucci, 2019).

1.2 Transmission/Generation

Taking into consideration the distinction between transmissive, interactive and recursive (see Tab. 1), we understand that the potential of feedback is not limited to a one-way teacher-student dimension (information function), but opens up to interaction between multiple subjects.

It has been observed that feedback is most effective when it becomes an opportunity to a discussion between teachers and students (Nicol and Macfarlane-Dick, 2006). If, on the one hand feedback can only be directed to the past because «[…] is a "consequence" of performance» (Hattie and Timperley, 2007, p. 81) – on the other, due to its orientation function it is aimed at the future and, thanks to restructuring and reflective activities, it generates learning.

In effect, feedback in the age of innovation has a predictive and anticipatory role (Rossi *et al.*, 2018) and in this sense fits into the conversational framework proposed by Laurillard (2012): the recurring cycles of practices and communication make it possible to redefine meanings and learning.

Tab. 1 - Analysis of the type of feedback (source: Laici and Pentucci, 2019, p. 17)

Type	Effect on student	Effect on instructor
Tansmissive	Functional Informative	Evaluative
Interactive	Corrective	Regulative
Recursive	Formative	Restructurative Reflexive

1.3 Exteriority/Interiority

From an evaluative point of view, it should be noted that feedback has both a hetero-evaluative and a self-evaluative dimension (Hattie and Clark, 2018). The internal dimension supports student self-perception and self-regulation. Self-regulation – understood in terms of a process in which the learner actively defines his learning objectives and controls them taking into account the cognitive, motivational and behavioral dimensions in relation to a specific context (Pintrich and Zusho, 2002) – opens up the perspective of the centrality of the internal dimension of feedback. Internal feedback can be defined «as, at core, an 'internal' generative process through which students construct knowledge about their own ongoing activities and understanding through their own evaluative acts» (Nicol, 2018, p. 49).

The conceptual pairs presented show how feedback cannot be reductively placed at the end of a teaching activity. In learning design, feedback can be an element introduced into a multiplicity of didactic architectures and formats: from forms more traditional – such as, for example, a lesson for a large group (Petti and Bruni, 2021) to approaches more interactive characterized by greater student autonomy.

2. Promote feedback literacy among university students

It is important to involve students in the feedback processes, in order to make them increasingly autonomous in the processes of self-regulation and monitoring (Hattie and Timperley, 2007).

Student feedback literacy can be described like «the ability to read, interpret and use written feedback» (Sutton, 2012, p.31) using «the understandings, capacities and dispositions needed to make sense of information and use it to enhance work or learning strategies» (Carless and Boud, 2018, p.1316).

According to Carless and Boud (2018), four characteristics can be outlined for the effective use and improve of student literacy about feedback (Fig. 1):

- *Appreciating feedback*. Students must be able to recognise, understand and appreciate feedback in the different forms and contexts it is used. Initially, it is possible that students prefer receiving feedback only by teacher: the involvement of students in the feedback process and the ability to internalize and use it to support learning are complex elements on which it is necessary to work on extended times.
- *Making judgments*. An important element is accompanying students in the process of acquiring the ability to express judgments about the quality of work of oneself and others. Peer review proves to be an extremely effective method in this direction (Serbati, Grion and Fanti, 2019).
- *Managing affect*. Emotions must be managed in a balanced way when receiving feedback, so as to make students proactive in accepting suggestions. Classroom climate is also important because if an atmosphere of trust is established, students are more likely to be confident enough to discuss ideas they may not have fully understood (Carless, 2013).
- *Taking action*. Finally, students are required to act effectively on the feedback received to improve themselves. To carry out this, students must possess a repertoire of strategies that allow them to become the agents of their own change.
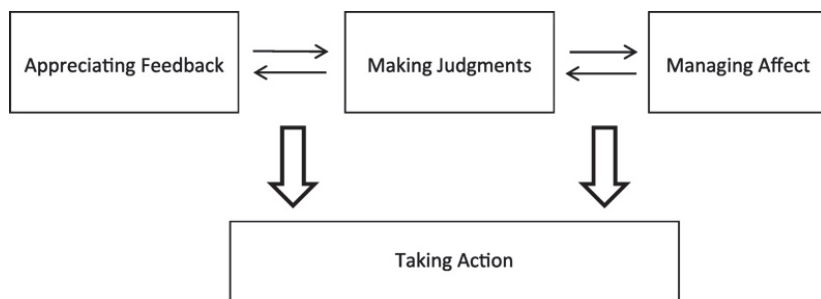

Fig. 1 - Features of student feedback literacy (Carless and Boud, 2018, p. 1319)

The possession of this literacy is very important for all university students, but it is even more so for those who will become teachers. Despite much attention has recently been devoted to student feedback literacy and less has been given to what is required of teaching staff in their various roles in feedback

processes (Boud and Dawson, 2021), the development of student feedback literacy is enabled by teacher feedback literacy (Carless, 2015).

Effective strategies for promoting action on feedback are those in which students have the opportunity to not only receive and use feedback but also to produce it from a learner-centred perspective (Molloy, Boud and Henderson, 2020). These strategies involve the use of specific learning activities, such as:

- *Production and reception of peer feedback*. Not only students must be able to analyse other students' work and compare them according to the evaluation criteria shared with the group, but they are also must be able to read and interpret the comments received, trying to understand their negative and positive aspects. An example can be found in the peer review method, which Nicol (2018) defines as a didactic organization that allows to provide written feedback to each other on their work.
- *Use of exemplars*. Exemplars are generally previous year examples provided by teachers or students that can serve the required standards (Grion and Serbati, 2019). They enable students to understand how a good job must be done and they can be introduced directly into the peer evaluation process (Nicol, Serbati and Tracchi, 2019). To make the use of exemplars more effective, it is preferable for teachers to discuss the quality criteria of a task/performance with students, guiding their evaluative judgements (Carless and Chan, 2017).
- *Peer discussion*. Discussion has always been a place for comparing opinions and interpretations of different types. It is a useful tool for active collective reasoning and for comparing different explanation models (Pontecorvo, 1985). It allows clarification of doubts and contributes to the correct interpretation of feedback.
- *Student self-assessment*. Reflecting on feedback provided and received increases the ability of students' self-critical judgment (metacognition). According to Nicol (2018), feedback also has generative value; it activates an inner process by which the student builds knowledge and understanding of his own activities through his own evaluation acts.

3. Objectives and research questions

Starting from these premises, the main objective of this paper is to describe the first results of a feedback literacy promotion experience conducted in the single-cycle master's degree program in Primary Education Sciences at the University of Molise. The following are the specific research questions that framed this investigation:

Q1: In the students' perception, do literacy feedback activities have a positive effect on their learning?

Q2: If yes, how these activities, in the students' opinion, are effective in improving their learning?

4. Methods

4.1 Study context and participants

The activities took place within the course of *Assessment of Learning* (7 credits). It is scheduled for the second year of the five-year course of study and was delivered during the second semester of the academic year 2021/22 (from March to May 2022).

The investigation was conducted on a total of 258 students who partecipated in lessons: most of these are female (93%), are under the age of 25 (67%) and have had no previous experience as a teacher (92%).

In a preliminary phase of the study, semi-structured questionnaires and student response system[1] tools were administered to the students through the University's *Moodle* platform. This phase, which is not reported in its entirety here for reasons of space, had the aim of verifying the initial knowledge possessed on the course contents and identifying expectations, emotions and perceptions of self-efficacy about their (future) action as teachers dealing with evaluation processes in the school context. Teacher (pre) conceptions of assessment, in fact, may subsequently influence their own professional practice (Brown, 2004).

This first analysis revealed, among the students, the fear of not being sufficiently objective in judging the pupils' learning and the concern of not being able to provide adequate feedback. Furthermore, when asked to associate an emotion with the word "evaluation", more than half of them (57%) associate a negative state of mind such as anxiety, fear and apprehension, as emerged in further previous similar surveys in the Italian context (Grion, Serbati and Cecchinato, 2022).

4.2 Procedure and phases

The feedback literacy experience, which lasted from April to May 2022 and involved all the participants considered, was developed through the following phases:

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[1] Specifically, tools as *Google Form* and *Mentimeter* was used for this first introductory phase.

1. *Theoretical introduction to the concept of feedback*. In this phase students are introduced by the teacher of course to the notion of feedback and its main characteristics (aims, effect size, levels, conditions of effectiveness).
2. *Analysis and discussion of exemplars*. After a theoretical presentation of the characteristics of effective feedback, the criteria that allow students to judge a quality feedabck have been identified and shared through an analysis and a guided discussion of some feedback exemplars.
3. *Production of formative feedback on a pupil's work*. In this phase students work in pairs stepping into the role of a primary school teacher. The work consists of discussing and writing a formative feedback on a excercise of a primary school pupil, referring to the criteria and the quality dimension previously discussed (Fig. 2).
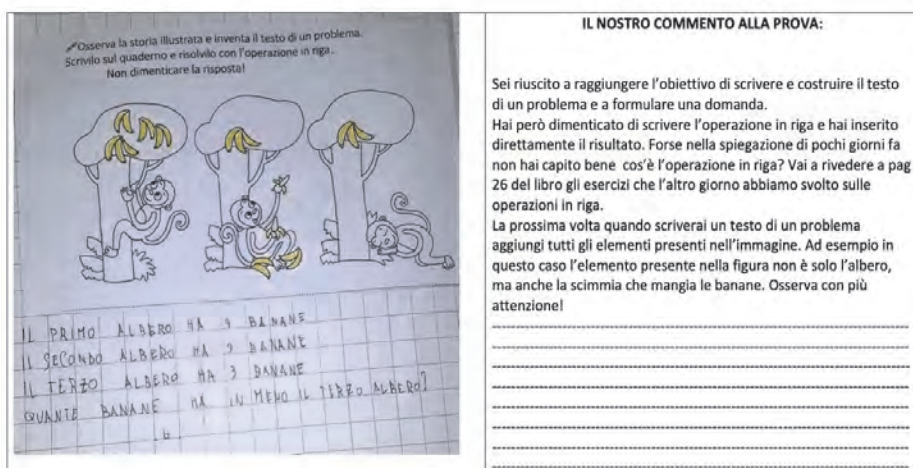
Fig. 2 - Example of work done in pairs

4. *Peer and self-assessment*. Some of the previous students' work is presented to the whole class. Each student, individually, carries out a product review based on the guiding questions provided. Students who have submitted their work for peer evaluation, on the other hand, carry out a self-evaluation of their work (Fig. 3).
5. *Discussion about peer feedback*. Some peer reviews on the works are read to the class to start a collective discussion in which opinions and explanations are shared.

Guiding questions for peer assessment	
1.	At which level, among those studied, is the feedback addressed?
2.	How was the presence of any errors handled by the evaluators?
3.	Is it feedback effective? Why?
4.	What are the strengths and weaknesses of feedback?
Guiding questions for self-assessment	
1.	At which level, among those studied, is your feedback addressed?
2.	How you handled any errors?
5.	Is it feedback effective? Why?
3.	Was it easy to find a point of agreement with the other evaluator?
4.	Based on your observations / discussions with the other colleagues, what would you improve on your feedback?

Fig. 3 - Guiding questions for feedback assessment

4.3 Instruments

During the course activities, students were asked to create an e-portfolio (Rossi and Giannandrea, 2006) on Wakelet, an online environment that allows to aggregate different types of resources for free (videos, pdf, images, links and insertion of texts and notes). This allowed to make the students' learning path "visible" by collecting the most significant documents developed during the course and to integrate them with their own reflections and self-assessments (Fig. 4).

Fig. 4 - Example of e-portfolio produced on Wakelet

For these reasons, in order to evaluate the perceived effects of the interventions implemented consistent with the research questions, narrative reflections and self-assessments present in the student e-portfolios have been analysed. In fact, a content analysis of portfolio documentation can be very useful to grasp the transformative learning processes put in place by students

as a result of the didactic experiences (Romano, 2018). In this specific case we wanted above all to verify if the feedback literacy activities had been considered significant by the students, and how did are effective in improving their learning.

5. Results

The content analysis covered a total of 224 e-portfolios. Although there were 258 initial participants, in fact, not everyone submitted their work.

From an initial analysis of the e-portfolios produced, those from which it is possible to clearly deduce a positive effect of the literacy feedback activities on the students' learning path amounted to 85 (f% = 37.9). On these 85 e-portfolios, a further content analysis of the textual materials was conduct through the use of the *MAXQDA Analytics Pro 2022* software: the recurring themes were identified and then aggregated by areas of meaning, allowing the categorization in codes and subcodes (Fig. 5). The coding process consisted in assigning a code to each textual segment marked as relevant. In this case, subcodes were also assigned to some textual segments where the positive role played by some elements (in this case, work with peers) in improving one's learning was clear.

Codes	
1	Increased interest in course topics
2	Involvement and identification in the role of teacher
3	Increase in knowledge and evaluation skills
4	Self-assessment and review of works
Subcodes	Peer work - added value

Fig. 5 - Code system used in the qualitative data analysis

From the frequency distributions of the codes it clearly emerges that the most relevant effect that students subsequently perceived from the literacy feedback activities was that of self-evaluating their own works and reviewing them independently (Fig. 6).

	Frequency	Percentage
Self-assessment and review of works	37	33,33%
Involvment and identification in the role of teacher	10	9,01%
Increase in knowledge and evaluation skills	17	15,32%
Increased interest in course topics	8	7,21%
Peer work - added value	39	35,14%
TOTAL (valid)	111	100,00%

Fig. 6 - Coded segments assigned to a specific code. Frequency distributions

The analysis of the subcodes, on the other hand, it is useful for understanding the role of the various activities carried out in the improvement process: peer work (feedback, discussion and evaluation) seems to have played a fundamental role, especially in the process of self-evaluation and spontaneous correction of one's products. (Fig. 7).

	Frequency
Self-assessment and review of works + Peer work - added value	35
Involvment and identification in the role of teacher + Peer work - added value	2
Increase in knowledge and evaluation skills + Peer work - added value	1
Increased interest in course topics + Peer work - added value	1
TOTAL (valid)	39

Fig. 7 - Combinations of codes and subcode "Peer work". Frequency distributions

To substantiate what emerged from the data, we report, as an example, some extracts taken from the e-portfolios:

«After the presentation of colleagues about the work in pairs from the last lesson, we provided peer-to-peer feedback. In my opinion, this methodology had a dual objective: it allowed me a different type of learning but at the same time I also carried out a self-evaluation of my job» (Portfolio n. 59).

«The peer evaluation was decisive, which allowed us to correct the incorrect interpretations of the information received and to be able to start an individual study» (Portfolio n. 30).

«The comparison and the feedback were very useful to me as they allowed me to understand where I was wrong and how to correct myself, and all this was a confirmation of their importance» (Portfolio n. 53).

6. Discussion and conclusions

In answer to the first research question, related to a positive effect of literacy feedback activities on students' learning, it emerged that the e-portfolios in which traces of this positive effect was found are only a part of the total examined (85 out of 224). Despite this, it should also be noted that the students were not directly asked to report their perceptions of the activities relating to feedback, but were free to include in the e-portfolio the experiences of the whole course they considered most significant, and then to carry out a final reflective self-assessment. For this reason, some considerations in this regard may have been lost. Anyway, the results of the narrative reports analyzed are highlight the effectiveness of some feedback activities in improving student

learning, especially in relation to the promotion of self-assessment processes and improvement of its products (Q2).

In particular, data shows that evaluating other's products has generated a spontaneous reflection on one's own work. According to Nicol, Thomson and Breslin (2014), providing feedback to colleagues is often more beneficial than receiving it because it is more cognitively engaging: it involves higher-order processes, such as applying criteria, diagnosing problems and suggesting solutions. Furthermore, being exposed to the work of peers helps students self-assess their own output more effectively because they are making comparisons between their own work and that of others (McConlogue, 2015).

The effectiveness of peer work also includes the importance of dialogue with one's colleagues: it is in fact a powerful means «by which students fill gaps in mutual knowledge, co-create meaning by discussing, debating and articulating their thinking» (Nicol and Selvaretnam, 2022, p. 511).

This is especially advantageous in a large classes where teachers find it difficult to provide individual feedback: many of the comments that teacher may expect to provide will not be necessary, as students will have generated that knowledge as internal feedback on their own from previous comparisons. Also, after these comparisons, it is probably that students will be more receptive to teachers' comments and better able to make sense of and use them (Nicol, 2021).

The results prompt us to go beyond this first exploratory phase, hoping for a continuation of the research that can also make use of additional tools for literacy activities, as well as other impact assessment tools that complement the portfolio analyses. This in order to bring out the internal feedback produced by the students even more explicitly and clearly.

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