Using assessment to transform the way pre-service teachers learn: insights from a pedagogical intervention

A avaliação como meio para transformar a aprendizagem dos estudantes futuros professores: contributos de uma intervenção pedagógica

La evaluación como medio para transformar la aprendizaje de los estudiantes futuros profesores: contribuciones de una intervención pedagógica

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Abstract: This paper examines the conceptions and practices of assessment of an university teacher, in a perspective of professional development, complemented by her students' (n=25) perceptions. Data were collected in a course from a master's degree in Teacher Education in a Portuguese public university. An Intervention and Training Project was carried out, combining qualitative and quantitative methods. It included the analysis of interaction strategies, the potential and limitations of the assessment methods and their implications for teaching, learning and academic results. The formative function of assessment, through regulating, monitoring, guiding, improving and supporting student learning and the involvement of students in the assessment practices emerges.
Keywords: Assessment practices. Assessment conceptions. Feedback. University teachers. Pre-service teachers.

Resumo: Este artigo analisa as conceções e práticas de avaliação de uma professora universitária numa lógica de desenvolvimento profissional, complementadas pela perspetiva dos seus estudantes (n=25). Os dados foram recolhidos num curso de mestrado em Formação de Professores numa universidade pública portuguesa. Foi implementado um Projeto de Intervenção e Formação, que combinou métodos qualitativos e quantitativos. Este estudo incluiu a análise de estratégias de interação, as potencialidades e limitações dos métodos de avaliação e as suas implicações para o ensino, aprendizagem e resultados académicos. A função formativa da avaliação, baseada na regulação, monitorização, orientação, melhoria e apoio à aprendizagem dos estudantes e o envolvimento dos estudantes nas práticas de avaliação, emergem nos resultados deste estudo.
Palavras-chave: Práticas de avaliação. Conceções de avaliação. *Feedback.* Professores universitários. Estudantes futuros professores.

Resumen: Este trabajo analiza las concepciones y prácticas de evaluación de una profesora universitaria dentro de una lógica de desarrollo profesional, complementadas con la perspectiva de sus alumnos (n=25). Los datos se recogieron en un curso del Máster de Formación del Profesorado de una universidad pública portuguesa. Se implementó un Proyecto de Intervención y Formación, combinando métodos cualitativos y cuantitativos. Este estudio incluyó el análisis de las estrategias de interacción, el potencial y las limitaciones de los métodos de evaluación y sus implicaciones para la enseñanza, el aprendizaje y los resultados académicos. La función formativa de la evaluación, basada en la regulación, el seguimiento, la orientación, la mejora y el apoyo al aprendizaje de los estudiantes y la implicación de éstos en las prácticas de evaluación emergen en los resultados de este estudio.
Palabras-clave: Prácticas de evaluación. Concepciones de evaluación. *Feedback*. Profesores universitarios. Estudiantes futuros profesores.

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Introduction

Assessment is crucial, it is an integrant part of the teaching and learning process (Boud, 1989, Brown; Glasner, 1999, Rust, 2007) and should not be treated as an addendum at the end of the training process! In Higher Education context, assessment is often designed as a separate part of the teaching and learning process. But assessment is far more important! The way learners "interpret assessment requirements can have a very powerful influence on what they do and what they construe. Different practises of assessment can influence different learning outcomes and can lead to either superficial or meaningful learning" (Boud, 1989, p. 31). It is a strategical asset for higher education organisations. Teachers' right choices on the assessment strategies are a crucial contribution to the success of students. A good assessment can be motivating and productive for students, helping them to know "how well they are doing and what else they need to do" (Brown; Glasner, 1999, p. 4). On the other hand, poor assessment may lead to "tedious, meaningless, gruelling and counterproductive" (Brown; Glasner, 1999, p. 4). Within a perspective of improvement and not of measurement (Bonniol; Vial, 1997), the participative construction of the assessment criteria contributes to the understanding of what is expected of students and they contribute to the development of self-regulation of students (Bonniol; Vial, 1997).

Under the Bologna framework, there is an expectation that assessment methods will be diverse (i.e. alternative methods, including those that involve students) and that assessment will serve additional purposes than simply ranking, certifying, or grading. The adoption of other perspectives of assessment, such as *Assessment for Learning* (Mcdowell *et al.*, 2011), is in line with existing literature about the crucial role of feedback in assessment and learning process (Black; Wiliam, 1998, Carless *et al.*, 2011, Hattie; Timperley, 2007). This perspective is endorsed by learning-oriented assessment (Tang; Chow, 2007, Carless 2009, 2015) as a pathway to professional knowledge and self-regulated learning with implications for teaching practices (Van Den Bergh; Ros; Beijaard, 2015). This framework implies that students are not mere consumers of lessons and tests. They assume a greater responsibility in the learning and assessment process, integrated with teaching and learning processes. Under such circumstances it is likely that university teachers will adopt a conception in which assessment functions formatively to diagnose learning needs and inform improvement-oriented feedback. In this

light, alternative assessment methods emerged to address the less successful aspects of the traditional assessment. They may include methods such as portfolios, project-based work and collaborative work, etc., and other modes of assessment such as self and peer-assessment in the context of higher education (Flores; Pereira, 2019, Fernandes, 2020).

Methods

This paper draws upon a wider piece of research within a Ph.D. in Educational Sciences[2], funded by the Portuguese National Foundation for Science and Technology (Ref. SFRH/BD/103291/2014), which in itself is a part of a broader three-year research project entitled "Assessment in Higher Education: The potential of alternative methods", funded by Portuguese National Foundation for Science and Technology (Ref. PTDC/MHC-CED/2703/2014) (Fernandes, 2020). The study reported in this paper aimed at identifying conceptions and practices of assessment of university teachers, during a semester, and at collaborating with teachers in the study of their practices in a collaborative and professional development logic. In particular, the following research goals are addressed:

(1) To analyse assessment practices in higher education both in teachers' and students' perspectives;

(2) To understand the relationship between assessment and teaching and learning in the context of Higher Education;

(3) To evaluate the effects of an ITP actions' in terms of the teachers' professional development and of assessment practices;

(4) To contribute to improving the quality of the assessment practices in higher education.

Participants

This project was developed over a semester in a curricular unit of a Master's Degree programme in the scientific area of Social Sciences, more specifically in teacher education programme. The group involved in the ITP consisted of an experienced female teacher in

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[2] This article is derived from the work carried out as part of the author's doctoral thesis (Fernandes, 2020), under the supervision of Maria Assunção Flores (Universidade do Minho).

various teaching cycles, with pedagogical training, and 25 students, mostly female, with a diversity of ages and backgrounds. This group were enrolled in a teacher education programme (1st-year students, 2nd semester), with specific knowledge about the perspectives, functions, moments, and methodologies of assessment, essential for a more critical approach and more active participation in the ITP. This group has similar backgrounds in terms of initial training and initial training institution. However, some working students and age differences stand out from the group.

Table 1. Methods and Demographic characteristics of the participants

Methods	Participants	Demographic Characteristics	
Questionnaires Focus Group Interviews Monitoring sheets **January – September 2019**	1 Course from a Master's degree in Teacher education 1 Portuguese public university Field of knowledge: Social Sciences 2 semi-directive interviews * 1 teachers 1 Focus group * 3 students 2 Questionnaires * 25 students Monitoring activities * 25 students	Teacher	Female Age: 46 years Teaching experience: 22 years Academic degree: Ph.D. Professional category: Assistant Professor Teacher in undergraduate, master's degree and PhD programmes With pedagogical training
		Students (Pre-service Teachers)	25 students 2 males and 23 females Age [21-43]

Source: Author

Instruments

Teacher and students' perspectives about assessment: an integrated approach to assessment

This project is based on two fundamental assumptions: the first is that the "classroom assessment can fundamentally transform the way teacher teaches" (Popham, 2008, p. vii) especially if the transformative power of the formative assessment is recognised (Popham,

2008). On the other hand, the important link between assessment and learning is recognised (Black, 2018). Thus, through a formative and participatory approach, it was intended to work with a teacher (who volunteer to participate within a perspective of professional development), by analysing interaction strategies, potential and limitations of the assessment methods and their implications for teaching, learning and academic outcomes.

The development of the course was monitored over a semester to discuss the appropriation of knowledge by students and the development of transversal skills, the transdisciplinarity of knowledge, pedagogical innovation and the student-centred teaching (Esteves, 2008). This project (Fernandes, 2020, Pereira et al., 2023) also drew on the Assessment for Learning principles, including the issue of formal and informal feedback, opportunities to experiment and put into practice knowledge, relevant assessment tasks, an "appropriate balance between formative and summative assessment" and students' autonomy (Mcdowell *et al.*, 2011, p. 750).

Elements related to the initial perceptions of the teacher and students enrolled in the initial evaluation, in the monitoring of the assessment activities, and in the final evaluation of the course are reported. The synthesis of the data collected through the questionnaires with the students was shared with the participants, aiming to originate a critical analysis of the teacher's practices. Throughout the project, monitoring instruments were developed, discussed and co-constructed with the teacher. Data were systematised and returned to the participants, feeding back the reflective and analytical process.

The Intervention and training Project (ITP)

An Intervention and Training Project (ITP) was carried out in a Portuguese Public University, combining both qualitative and quantitative methods. It included the analysis of interaction strategies and potential and limitations of various assessment methods and their implications for teaching, learning and academic results. It entailed, at the same time, a formative and participatory approach. As such, students and teachers participated (cf. Figure 1).

Figure 1. The ITP design
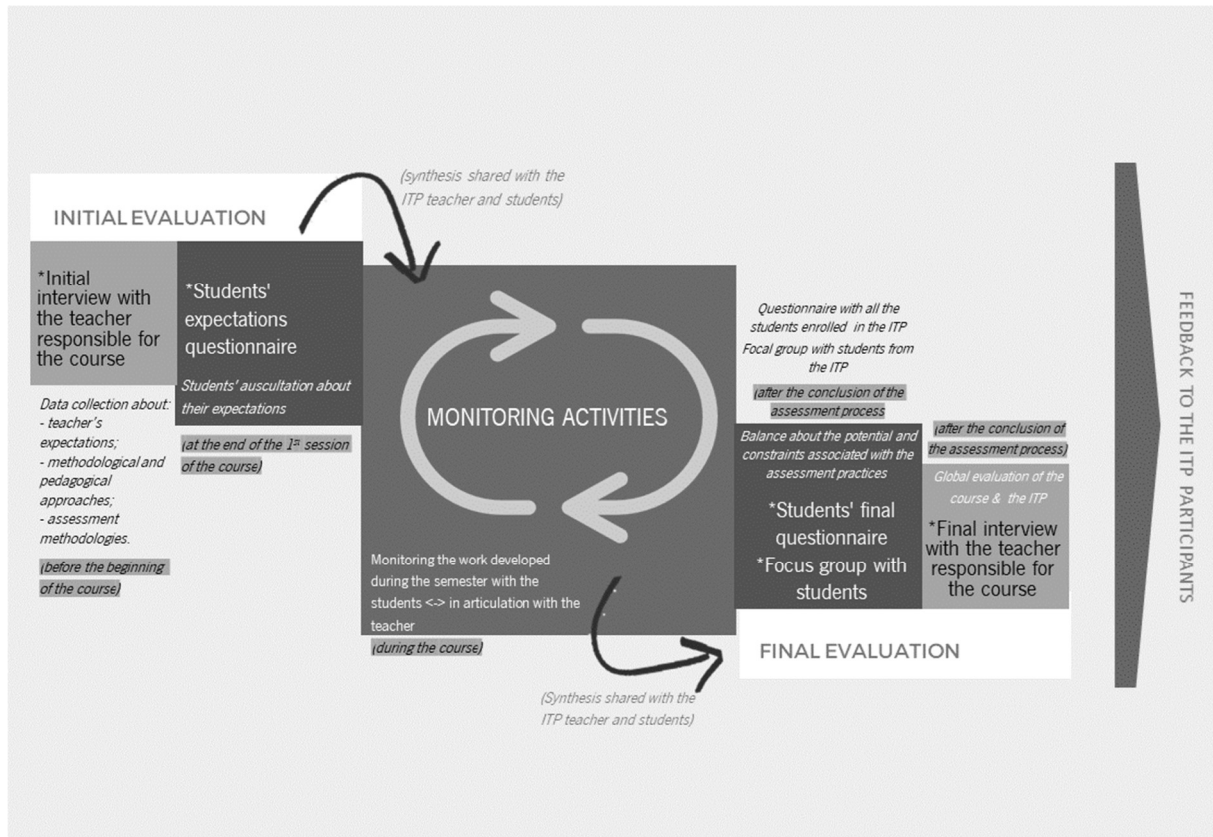
Source: Fernandes, 2020

At the beginning of the ITP, teacher's expectations and methodological and pedagogical assumptions were explored through a semi-directive interview that also included the collection of data about their assessment methodologies. At the end of the project, a new interview was held with the university teacher involved to carry out an overall assessment of the project. The interviews were conducted in person at the beginning and end of the ITP and, subsequently, analysed using the content analysis technique. Students were also consulted about their expectations at the beginning of the semester concerning the course under analysis, by completing an expectation sheet on the assessment and first impressions about the course, under the form of a written questionnaire.

At the end of the semester, a new questionnaire was designed to provide a general report of the assessment practices. A focus group were also held with the students to analyse the potential and constraints associated with the assessment practices. Additionally, the work

developed during the semester was monitored with the students in articulation with the teachers involved in each project. Figure 1 illustrates the data collection process. Throughout the research process, the access to information was guaranteed by sharing it with the teachers and students, namely through a synthesis of each data collection instrument.

Analysis

Statistical analyses were performed using the IBM SPSS Statistics 24 software. Qualitative data was analysed through content analysis guided by the principles of completeness, representativeness, consistency, exclusivity and relevance (Bardin, 2009), and by recognising the interactive nature of the data analysis (Miles; Huberman, 1994). A mixed approach and the definition of more general categories were privileged (Bardin, 2009, Esteves, 2006), articulating an inductive (emergent character of the data) (Cho; Lee, 2014) and a deductive perspective through the definition of categories of analysis in compliance with the research goals and the theoretical framework (Ezzy, 2002). The categories of analysis were semantic (Miles; Huberman, 1994).

Ethics

Ethical issues aiming at guaranteeing the protection of the participants and the integrity of the research process were considered in this research (Coutinho, 2014). All procedures were approved by the University of Minho Ethics Committee (Ref. SECSH035/2016 and SECSH036/2016). Thus, all participants were fully informed of the research goals and provided their written consent (Cohen; Manion; Morrison, 2007). Also, the confidentiality and anonymity of the participants were assured. All types of data referring to institutions and participants were omitted. Moreover, the data collected will be exclusively used for research purposes and for the improvement of the formative strategy underpinning this research.

Findings

In this section findings from the ITP are presented, namely the students perceptions about assessment, the assessment dynamic, and the overall analysis of the assessment process.

Is assessment important? [Expectations of the students]

The characteristics of the assessment (e.g. importance, justice, suitability, quality and efficiency), the reflective component, the nature of the classes and assignments (based on the articulation between theory and practice and the use/exploration of tools for professional practice), the balance of assessment elements (in terms of percentages) are the main perceptions of students regarding the presentation and discussion of the assessment elements. In addition to these aspects, students also refer to the differentiating character of this course, the articulation between individual and collective work, the collaborative work, the development of the portfolios, the assessment throughout the process, the positive characteristics of the teacher, and feedback:

> The construction of the Portfolio is an interesting idea. (Initial Questionnaire, Student 8)
>
> I believe that the assessment will focus on essential issues and that it is quite complete, with an individual work and a group work, allowing us to show the best of ourselves. I also believe that the availability of the teacher to provide feedback is an asset for us. (Initial Questionnaire, Student 15)

On the other hand, the imbalance in the distribution of the assessment elements (elements and percentages) is identified by one of the participants:

> It will be a complex assessment with several aspects to take into account. The several assessments have the same weight, group work and individual work. That is a less positive aspect because they have different levels of difficulty. (Initial Questionnaire, Student 8)

Additionally, students identified the complexity and workload required by the assessment process. Yet, they also recognise the formative and positive character of the learning process:

> The assessment will be a laborious process. However, it will be important for our training to connect the theory with a more practical dimension. It will be

always necessary to mobilise the contents learned in the previous years. (Initial Questionnaire, Student 18)

In general, students' expectations regarding the course are very positive. The preparation to the professional practice, the articulation between theory and practice, the love for the course's subject, the expectation of deepening learning, the practical nature of the course, and the development of critical knowledge are highlighted in the students' accounts:

> My expectations are very high because this course has a very practical component which will be very precious for our activities both in the practicum and in our future as teachers. (Initial Questionnaire, Student 24)
> I think this course will be important because it helps us to create a critical opinion about what we are learning. (Initial Questionnaire, Student 9)

The strong reflective component and the mobilisation of theoretical concepts in the simulation of practice are the two main challenges identified by the students. In addition to these challenges, the degree of achievement of the course's goals, the construction of the assessment products (e.g. portfolio), time management, working in groups, the workload and the ability to create and imagine new things are also challenges identified by the students:

> I think the biggest challenge will be to relate the theory that I have acquired over the years to practice. To overcome it I will have to constantly create connections that allow me to learn more and more and become a professional. (Initial Questionnaire, Student 1)
> My biggest challenge will be the individual reflections because I have some difficulties in writing down my ideas and in developing them. (Initial Questionnaire, Student 6).
> Creativity to create more and more moments that can provide possible and better learning for children. (Initial Questionnaire, Student 17)
> I think it is the workload because it looks like demanding assignments. (Initial Questionnaire, Student 18)

The mobilisation of theoretical knowledge for the simulation of practice, the teacher's support, the collective and also the autonomous work, effective time management, and students' self-commitment arise in some of the participants' accounts as ways to overcome these challenges.

The assessment dynamic

Data collected with the teacher at the beginning of the project indicate an assessment for learning approach and the development of formative assessment activities, through continuous assessment assignments, learner-centred methods, reflective activities and continuous feedback, in line with Bologna principles and also with the institutional regulations:

> To answer to the University regulation, I always try to have more than one formal element of assessment. In this course we have group work and individual reflection, which allow me to reach two very important dimensions of learning: the collaborative work (in which I want students to build things collaboratively, to build professional competence, and to learn from others); and, another fundamental dimension for these professionals, the individual reflection (by getting the experience of learning from others I may distance myself from what is happening to me and I can identify my learning). When I designed this assessment strategy I gave a lot of value to these dimensions: collaborative and individual. This individual dimension is very important, that is the reason why students have an initial reflection, weekly reflections, and a final reflection. (Teacher initial interview).

At the same time, the importance of assessment as learning is also present, through the support to student metacognition, the interdependence between learning and assessment, self-assessment, and student active and critical thinking (Earl, 2003, Flores; Pereira, 2019):

> The main dimension of the assessment process is learning. You can only assess what you teach. What I define as content and learning are the guidelines of what I will assess. (…) Assessment is a complicated thing. It is inseparable from the rest, divorcing assessment from learning is a lie!
> This individual reflection is to help students to develop this competence of learning to learn: "how am I managing my learning?", "I learned from others but I am conscious, through reflection, thinking about what I am learning". It involves metacognition as a way to consolidate learning. (Teacher initial interview)

Another aspect that stands out in the approach of the teacher (and explicit in the previous quotation) is the focus on learning to learn, considered one of the pillars of 21st-century education (Morin, 2003), by being the most basic knowledge of all (Goleman, 1999):

> I have no illusions, but I do have some clear intentions: that they reinforce their learning, that they see what the theory is for (they should use it to better

understand the curricular guidelines, they will not be teachers here, this is for the year). Above all, that students get used to monitoring their learning because this is how they are going to learn throughout their lives, things don't happen intuitively, they have to get used to thinking about the effect that learning has on themselves. (Teacher initial interview)

The assessment methodology is learner-centred (Webber, 2012), covering numerous aspects and sources of the learning process such as negotiation and student involvement. The assessment instruments are formative (Black; Wiliam, 1998), based on the development of a group work whose final product is a collective portfolio, and a reflection, built throughout the semester and revisited and reformulated at the end of the course.

> There is a group work that I present, prepare and follow. Each week I sit with students at each seminar to help them develop this group work. In group work, students develop activities and present them in a portfolio produced throughout the semester. In addition to the group's work, I also have another instrument that they will build throughout the semester, the individual reflection. (Teacher initial interview)

The concern with the development of the teaching-learning process, articulated and not dissociable from the assessment process, are aspects that stand out from the findings, clearly related to the philosophy of the teacher in terms of training and learning. Also, the assessment results from the confrontation and articulation of formal and informal procedures to adjust and improve students' learning: (Black; Wiliam, 1998):

> Because I have pedagogical training and because I am very interested in the learning process of these students I ended up reading some things about the role of assessment and learning. Because I know that assessment is an integral part of the students' learning process. Assessment is a daily and continuous assessment. It's made up of the conversations with students that allow me to create a perception of those students. I always end up confronting those that are my perceptions with the results of the formal assessment instruments, which often leads me to increase or round the grades that I have in the instruments. (…) My style of assessment is a style that seeks to be fair to students in this way, valuing formal aspects, but not failing to consider all that continuous assessment, my perceptions also count. (Teacher initial interview).

Assessment as a mean to transform student´s learning: process and tools

Teacher's commitment to students' learning is evident throughout the initial interview: "Students see me as committed to their learning. I think this is enough, they realise that I am committed". The teacher testimonies revealed a teaching critical-based matrix, through the active and autonomous construction of learning (Roldão, 2009), in other words, a communication paradigm in which knowledge is built through the interaction of teachers and students and mediated by the experiences of the interlocutors and the context (Trindade; Cosme, 2010).

Also, assessment has a formative function based on regulating, monitoring, guiding, improving and supporting students' learning (Flores; Pereira, 2019, Fernandes, 2004):

> For me, continuous formative assessment, what Domingos Fernandes talks about alternative formative assessment, giving feedback at the moment for me it is a very important way to assess, I inevitably build my perception about students, about the way they are learning. (Teacher Final Interview)

The findings point to the predominance of a learner-centred approach based on feedback activities that promote collaboration and interaction between teachers and students (Webber, 2012):

> In this course the immediate feedback that I give is fundamental, for me, it is fundamental for the construction of students' learning. I know they need me to be with them, to listen to them, and to give feedback at the moment. Through these dialogues, I create an image and a perception of the students and in this particular work that they will do this monitoring, week by week, it is essential for them to learn. The assessment in this sense is an integral part of the training process. (Teacher final interview)

High level and complex learning "is best developed when feedback is viewed as a relational process that takes place over time, is dialogic, and is integral to the whole process of learning and teaching itself" (Sambell, 2011, p. 5). Thus, in an assessment for learning perspective, assessment is an integral part of the teaching and learning process and aims to adjust and improve it (Black; Wiliam, 1998). Moreover, it is also possible to identify aspects in line with an assessment as learning perspective (Earl, 2013).

Feedback is much more than a comment which teachers give to students (Sambell, 2011). It should be a dialogic process which expects students to use it to expand their learning and work (Price; Handley; Millar, 2011). In this course, feedback assumed a predominant role in the assessment practices, not being limited to written comments, having been incorporated into the work developed by the students and reflected in their learning:

> The group work had three moments. At the end of each of these three moments, they had to upload a part of the work. Then I read and commented on all the 6 assignments. They reacted to my comments and incorporated them, more or less (...) in the final version of the work revealed this feedback. This was a very tough part, more than I would expect. (...) In practice, they were unable to think about the practice and I had to be there with them thinking about new ideas. Sometimes they incorporated these ideas, other times they went further. The groups were very different, some groups worked very well and brought up some good ideas, but with others, I had to give a lot of feedback for improvement. They understood with me the limitations of what they had done and were always able to incorporate all the feedback. It was a very readily incorporated feedback. (Teacher final interview)

The feedback received by the students was given by the teacher, orally (100.0%), online (92.0%) and also in person (84.0%). There was also written feedback (52.0%), and most of the times collective feedback (68.0%) and sometimes individually (28.0%) The feedback occurred along the several seminars of the course (68.0%) but also whenever students delivered a task or a final work (48.0%) or whenever students requested (cf. Graphs 1 and 2).

Graphs 1 and 2. Type of feedback received and moments in which feedback occurred
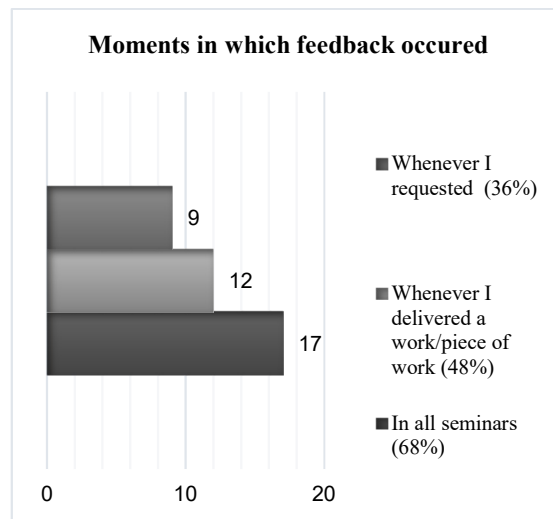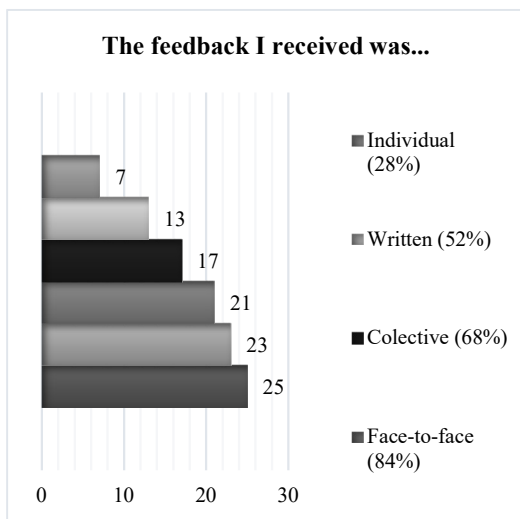
Source: Author

Students perceived feedback positively, highlighting its importance in the development and improvement of the work:

> Once, the teacher sent us the feedback and wrote a huge paragraph written in red. And we thought: "oh my God, everything is wrong, how is it possible?". But it was important to us, so we can go ahead and understand what we were supposed to do. If there was no feedback from the teacher, we would not achieve that. (Focus Group, Student 1)

Also, most students considered the feedback received useful (92.0%) and recognised its potential to improve their work, to consolidate content and new learning, to guide the work, to reflect about the work accomplished, and also to enhance personal development:

> All the feedback was useful. Its main goal was to help me to develop new learning and to make my work more complete and consistent. (Monitoring activities, Student 11)
> Feedback is very important because we can see if we are on the right track. We realise what we did well and what we should correct to improve and thus consolidate our learning. (Monitoring activities, Student 21)

Despite its potential, a few students highlighted some scarcity and inconsistencies in interpreting the feedback received:

> Many contradictory aspects regarding the indications that had been given by the teacher previously. (Monitoring activities, Student 8)
> The feedback was sometimes contradictory. (…) It was useful in some ways. Regarding reflections, it was not very specific. (Monitoring activities, Student 15)

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The success of the feedback also depends on the moment in which it is provided: it should be timely and equitable (Fernandes, 2004), preferably immediately, identifying the way students can go forward (Earl; Katz, 2006). The effort to provide timely and immediate feedback was one of the aspects highlighted by the teacher:

> To have time to give quality feedback to all students, to all individual and group elements. Because, for example, when they uploaded the group work I had to make a great effort to not leave it without feedback before the next seminar. (...) Also, giving feedback to the weekly reflections. I found myself, from Wednesday to Tuesday always checking the platform to see if there were any new reflections for me to give feedback. (Teacher Final Interview)

The feedback received at the end of the course in the form of a grade can give students information about their degree of achievement in that course and how they stand concerning their colleagues, but it may be not very useful to the student about how they can improve their performance (Earl; Katz, 2006), as the students' voices illustrate:

> In most courses we do the work, we deliver it, and some teachers send it back, but most teachers do not. They give us the grade but we do not know what we did well, what we did badly, or how to improve our work. If the feedback is provided during the development of the work, we can improve it! (Focus Group, Student 2)

> We also have a better grade. You got a 15 out of 20 in this work, but why? What about the other 5 values? Where did I go wrong? We never know that. It is not common for someone to send us feedback, that is seldom. (Focus Group, Student 3)

Assessment process evaluation

In general, students perceive assessment positively. The articulation between the theory and the practice, the development of competences, the development of collective work and the characteristics of the assignment were highlighted by the students as positive aspects of the collective and individual assessment activities:

> It allowed me to think further and understand what I can do with students so that they develop different skills. (Monitoring activities, Student 13)
> The collective work proved to be a key element for my profession and a complement to the practicum. (Monitoring activities, Student 17)
> It also allowed me to learn to imagine new activities, as well as to realise the immense potential of a story. (Monitoring activities, Student 15)

Students recognise the usefulness of learning in their professional future: 24 students out of 25 students answered affirmatively to the question of whether they would apply the learning skills developed during the course. The articulation between theory and practice and the characteristics of the activities developed are the main aspects highlighted by the participants. Yet, in the development of the assignments, the students identified some difficulties related to the adaptation of the activities to the contents and the public, to creativity, to the degree of complexity of the activities, to the articulation between the different elements of the group and to time management.

The support of colleagues in the group, the support of the teacher, the research work and the review of the work done are identified by the students as the main ways to overcome the difficulties identified:

> I think that without the help of the group it would be impossible, or almost impossible, to carry out a work of this dimension. (Monitoring activities, Student 12)
> I took into account the teacher's opinion and advice. (Monitoring activities, Student 4)
> To search for information in the internet and books, but above all in the documents used by teachers during the course. (Monitoring activities, Student 16)

In the activities developed collectively (cf. Table 2), students revealed autonomous work and autonomy in defining goals and intervention strategies, in clarifying doubts, and in

performing bibliographic research. They also looked for the teacher's help to clarify doubts. Interestingly, the answers exposed some dispersion in the use of supporting books and articles to carry out the work. Unlike the previous group, and taking into account the dynamics of the course, these questions were asked to each of the working groups and not individually in a total of six working groups.

Table 2. Development of the collective assessment assignments

	f (%)					Total
	Never	*Seldom*	*Not applicable*	*Sometimes*	*Always*	
We performed bibliographic research in printed sources	--	--	--	6 (100.0%)	--	6[3] (100.0%)
We performed bibliographic research in electronic sources	--	--	--	3 (50.0%)	3 (50.0%)	
We used supporting books to carry out the work	2 (33.3%)	1 16.7%)	1 (16.7%)	2 (33.3%)	--	
Whenever we have doubts, we look up for the teacher's help	--	--	--	1 (16.7%)	5 (83.3%)	
We tried to clarify our doubts autonomously	--	--	--	6 (100.0%)	--	
We search for alternative sources of information (e.g. internet)	--	--	--	4 (66.7%)	2 (33.3%)	
We worked beyond the class schedule	--	--	--	1 (16.7%)	5 (83.3%)	
We used external sources (books, articles, etc.) to support the work developed	--	1	1	2 (33.3%)	2 (33.3%)	
We defined goals regarding the lesson planning	--	--	--	0	6 (100%)	
We produce elements capable of structuring classes	--	--	--	1 (16.7%)	5 (83.3%)	
We consulted and mobilised information contained in the curricular guidelines	--	--	2 (33.3%)	2 (33.3%)	2 (33.3%)	
We produce elements capable of anticipating students' strategies and difficulties	--	--	--	6 (100.0%)	--	

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[3] n=6 work groups (25 students)

We based our choices on the existing literature	--	--	--	3 (50.0%)	3 (50.0%)	

Source: Author

Teamwork and team spirit, collaboration, critical thinking, organisation, rigour, and creativity are the strengths identified by the students, which translate into "good group dynamics" and the "high level of demand" of the work in group. On the other hand, the schedule and time management, the design of the activities, and the interdisciplinarity are identified by the students as challenges in the group's dynamic. One of the working groups also highlights their good dynamic as a result of years of working together: "We have not found any challenges because we have been working together for 4 years and we have been improving the group dynamics over time".

The students recognised the importance of the training strategy (cf. Table 3), particularly the construction of the portfolio (seen by 76.0% of the participants as very important); teacher's feedback in the construction of the portfolio (seen by 18.0% of the participants as very important), and of the teacher's feedback in the classroom (considered by 16.0% of students to be very important). Yet, findings also revealed some dispersion in the teacher's feedback responses to weekly reflections.

Table 3. Importance attached to the formative strategy

	f (%)					Total
	Very little important	Little important	No opinion	Important	Very important	
Formative strategy: global design	--	--	1 (4.0%)	17 (68.0%)	7 (28.0%)	
Portfolio construction	--	--	--	6 (24.0%)	19 (76.0%)	
Reflection	--	--	2 (8.0%)	8 (32.0%)	15 (60.0%)	25[4] (100.0%)
Teacher's feedback: in the classroom	--	--	--	9 (36.0%)	16 (64.0%)	
Teacher's feedback: portfolio drafts	--	--	--	7 (28.0%)	18 (72.0%)	
Individual weekly reflection writing	--	--	4 (16.0%)	12 (48.0%)	9 (36.0%)	

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[4] n=25 individual students

Teacher's feedback: seminars' reflections	--	1 (4.0%)	2 (8.0%)	10 (40%)	12 (48%)
Collaborative portfolio construction	--	--	2 (8.0%)	10 (40.0%)	13 (52.0%)
Final critical revisiting the initial reflection	--	--	--	10 (40.0%)	15 (60.0%)

Source: Author

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The main challenges identified by the students at the assessment level are mainly related to the development of the reflection, namely the workload and time necessary for its conclusion and the difficulties in the process of introspection and reflection, especially in the absence of lectures. They also identified group work namely in the articulation with the tasks of the other courses:

> One of the challenges of the assessment was the time. Another challenge has to do with the "degree of demand" intended for each school year. (Final Questionnaire, Student 1)
> Reflecting on seminars because there was no theory presented by the teacher. (Final Questionnaire, Student 8)
> The weekly reflections were, in some cases, challenging and unnecessary. (Final Questionnaire, Student 21)

The support of the teacher, the group colleagues and the individual work and commitment of the students are identified as the main means to overcome these challenges:

> The help of the teacher, the seminars taught by the teacher and the constant support of the group. (Final Questionnaire, Student 1)
> I searched for information and documentation autonomously and with workgroup conversations. (Final Questionnaire, Student 6)
> I worked autonomously and individually outside the classroom, using the materials that the teacher made available on the platform. (Final Questionnaire, Student 19)

Students recognise the potential of this assessment design in terms of collaborative knowledge construction, which makes it possible to articulate theory and practice, to imagine the practice at the level of reflection and meta-cognition in relation to the learning during the assessment process:

> It is extremely important because it allows me to develop skills and learning, articulate theory and practice and prepare for future practice (Final Questionnaire, Student 9)

It allows a constant reassessment of the work developed, mobilising knowledge constantly. (Final Questionnaire, Student 14)

But on the other hand or weeks that it was painful to do it… it's true! But we reached at the end and it was useful. And then we went to read to make that final reflection, in our last assessment moment, it was useful to take all those reflections that we had over the weeks and see what we were learning. The way we write the first reflection was very different from the way we write the last one, and I think it was important for our learning, I think it was important. At first, I thought that weekly reflection was not so important. (Focus Group, Student 1)

The importance and usefulness of the assessment activities developed within the scope of the course are recognised by the students, who highlight the dialectic approach to the seminars:

I think that it is a very positive balance because it worked quite well as it made us constantly be in contact with the contents of this course. While other courses spent the whole semester with what we heard in class and that's it and then we just use it in the test. "oh my god I will have to study everything, so much material! We didn't feel it here weekly, every week we had to think about what we were learning, we had to do the reflection, that is, at home, we had to do it again (...). And that was good because we were learning… (Focus Group, Student 1)

The balance of the course and the assessment methodology are globally positive:

I think it was relevant, it made sense, it was not out of context. We had that reflection, the last one that had more weight and also group work. I think group work reflects a lot of what we learn and what we are supposed to learn. (…) Now it's easier. It was something that took a lot of work and that required a lot from us, I didn't expect it would take so much work. (Focus Group, Student 1)

Students recognised the importance of both the collective work and individual reflections. They also recognised the fairness of the assessment methodology, which allowed them to identify strengths and weaknesses in their work, as well as to create instruments and tools for the development of their professional practice. The support both of the teacher and colleagues, and the autonomous work are also aspects highlighted in the participants' responses. However, the data collected points to some dispersion of the participants' responses regarding

the assessment's suitability, the complexity of the assessment tasks and the number of assessment elements (cf. Table 4).

Table 4. Students' evaluation of the assessment process

	f (%)						**Total**
	Strongly disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	*Strongly agree*	*Missing*	
The assessment methodology in this course was fair.	--	2 (8.0%)	--	19 (76.0%)	4 (16.0%)	--	
The assessment methodology in this course was adequate.	--	4 (16.0%)	2 (8.0%)	15 (60.0%)	4 (16.0%)	--	
The assessment methodology in this course allowed me to understand my strengths and weaknesses.	--	--	3 (12.0%)	16 (64.0%)	6 (24.0%)	--	
The assessment methodology in this course was important for my training in terms of teaching methodology.	--	--	2 (8.0%)	13 (52.0%)	10 (40.0%)	--	
The assessment methodology in this course enabled the articulation between theory and practice.	--	--	3 (12.5%)	11 (45.8%)	10 (41.7%)	1	25 (100.0%)
The assessment methodology of this course allowed the creation of instruments and tools for the development of my professional practice.	--	--	3 (12.0%)	12 (48.0%)	10 (40.0%)	--	
The number of assessment elements was adequate.	--	4 (16.0%)	3 (12.0%)	10 (40.0%)	8 (32.0%)	--	
The assessment tasks performed were complex.	--	6 (24.0%)	6 (24.0%)	8 (32.0%)	5 (20.0%)	--	
The teacher's support was important to carry out the assessment tasks.	--	--	--	9 (36.0%)	16 (64.0%)	--	
The support of my colleagues was important for carrying out the assessment tasks.	--	1 (4.0%)	2 (8.0%)	13 (52.0%)	9 (36.0%)	--	
Overall, I do a positive balance of the course assessment.	--	--	1 (4.2%)	13 (54.2%)	10 (41.7%)	1	

Source: Author

This view is shared by the teacher of the course which highlights the moments of learning provided along the course, but also the workload of the assessment's assignments:

> It is very hard! They understand the logic (...) but in class they were tired. In the assessment, the same. I think that assessment... A student said: "I appreciate this type of assessment because it is not testing". Assessment occurs throughout the learning process, there was not a specific time for assessment. The assessment did not stand out, it was done throughout the semester, it was completely secondary, although essential. It had no dominance, there was no test today! There were no moments of assessment, the assessment was part of the process. I think it came out very well. (Teacher final interview)

Students' self-assessment is consistent with the teacher's positive view of the students' work: *I had to listen to the students, here I am saying what I think, but I think my perspective is that the course was productive, that students worked well, there were a lot of learning moments… I think that went well! (Teacher Final Interview).* The students who responded to the final questionnaire about the functioning of the course considered their performance in the course good (28.0%), very good (68.0%) and excellent (4.0%).

Teachers and students have a positive perspective about the assessment process, which, despite being tiring, reveals the potential for student involvement and the development of transversal skills capable of preparing them for the proper development of their profession:

> I make a positive evaluation, although very tiring. I chose to take care of all this during the whole semester because I don't only have this unit and of course I have other things to do. But I do a positive evaluation not only because it contributed to their learning but also because it gave me signals, very concrete information, about how I can improve even more for the year. (Teacher final interview)

Critical self-reflection of the teacher's practices is another aspect that emerges from the findings of this project, intentionally structured and in line with her professional development and growth:

> I also plan to use three other instruments, but for my monitoring, I want to collect data on how this is going to develop and its effect. They are the

logbook, a questionnaire at the end of the semester and an interview at the end of the practicum with a student to try to understand if, in any way, what I did this year was of any use. (Teacher Initial interview)

This effort is recognised by students throughout the ITP. They identified in the teacher's practice fundamental and differentiating characteristics for teaching:

The teacher is competent... she is a competent person who always has something important to tell us and we know that we will learn. I don't know if it can be done with another teacher, it will be different, it won't be the same thing! (Focus Group, Student 1)

Findings from this context show an improvement in teacher conception about assessment, associated with a self-regulatory function of assessment. It also shows the improvement of the quality of teaching, congruent with the simultaneous use of different assessment instruments, designed for different purposes and capable of identifying strengths and weaknesses of the architecture of the student learning (Brown, 2002). This approach also reinforces the interdependence of assessment and learning and the process of appropriation of knowledge developed by students (Earl, 2013). In addition, findings highlight the existence of an inclusive training strategy, which implements a diverse set of methods and strategies (group work, individual work, portfolio, and reflection activities) capable of providing to all students the possibility to demonstrate their potential (Brown, 2005), as the following quotation illustrate:

It was one of the courses that made the most sense, where we learned more. In my opinion, we had some very important courses with little useful content for us. This is my opinion. I think that we learned things that we came to the end of the course and we thought 'what is this for now?!' With this specific course, I thought it didn't exist. I thought it was important because we learned a lot of useful things and the work was useful. That is what we want in the courses, that work may be useful, something that I miss and that one day later I can use. And I felt this with this course, in others courses I didn't feel the same. (Focus Group, Student 1)

Conclusions and implications

This study intended to analyse a teacher educator conceptions and practices of assessment throughout a semester by promoting, at the same time, a formative and participatory approach through collaboration with teachers in the study of their practices within a professional development logic. To this purpose, 25 pre-service teachers and a female higher education teacher were invited to critically analyse the assessment practices implemented in the course (Fernandes, 2020, Pereira et al., 2023).

Aware that there are no prescriptions or rules on the best way to assess learning in higher education students (Light; Cox, 2003, it was not intended to impose visions or perspectives, but, through the of the assessment process, to contribute to teachers' critical review of their practices. But, moreover to look at teachers' conceptions and practices of assessment throughout a semester by promoting, at the same time, a formative and participatory approach through collaboration with teachers in the study of their practices within a professional development logic.

The analysis of interaction strategies and potential and limitations of various assessment methods and their implications for teaching, learning and academic results allowed to identify hybrid teaching approaches. Assessment is used by this teacher to transform the way students learn. It has a formative function based on regulating, monitoring, guiding, improving and supporting students' learning (Fernandes, 2020, Flores; Pereira, 2019, Fernandes, 2004). The feedback activities that promote collaboration and interaction between teachers and students (Webber, 2012) were promoted in a learner-centred approach highlighting the existence of an inclusive training strategy, which employs a diverse set of methods and strategies.

Also, feedback practices and student involvement in assessment practices emerge. These practices make it possible to organise teaching in such a way as to place the student at the centre of the learning process "and implement models focused on understanding and developing skills", which is an underlying condition of the Bologna principles (Borralho; Fialho; Cid, 2012).

Another aspect that stands out from the analysis of assessment practices in this context is the involvement and participation of students. It is widely accepted that assessment practices should include the active participation of students, within a formative perspective (Fernandes;

Flores; Lima, 2012; European Commission, 2013). This view reinforces the crucial role of feedback in the assessment and learning process (Black; Wiliam, 1998, Hattie; Timperley, 2007, Carless *et al.* 2011; Kyaruzi *et al.,* 2018), in particular, the so-called learning-oriented assessment (Tang; Chow, 2007, Carless, 2009, 2015) seen as a pathway to the construction of professional knowledge and self-regulated learning with implications for teaching practices (Van Den Bergh; Ros; Beijaard, 2015). Learning-oriented assessment and peer assessment emerge as basic building blocks to promote "productive student learning" (Carless, 2009, p. 80). In this sense, we argue that this assessment dynamic could benefit with greater involvement of students in the assessment process, more specifically, through more peer assessment and peer feedback activities. Within a perspective of improvement and not of measurement (Bonniol; Vial, 1997), greater student involvement could also be accomplished by the student participation in the construction of assessment criteria. That may contribute to the understanding of what is expected of the students and to the development of their self-regulation (Bonniol; Vial, 1997). This would be an interesting topic to develop future research, based on the critical analysis of the practices by the actors themselves.

Funding details

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