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If I experience formative assessment whilst studying at university, will I put it into practice later as a teacher? Formative and shared assessment in Initial Teacher Education (ITE)

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ABSTRACT

The aim of this article is to analyse whether having experience of formative assessment during their initial teacher education courses (ITE) influences graduates' subsequent practice as teachers. That is, if the assessment methods that university students are subject to during their learning process are then actually employed by them during their professional practice as schoolteachers. To address this issue, questionnaires were issued and focus groups were held with a sample of ITE graduates. The main results of the study are that: (1) formative and shared assessment (FSA) is not used a great deal during ITE, but is highly valued; (2) some graduates have implemented FSA in their practice as teachers, following their experience on their ITE course; and (3) significant variables are found regarding the implementation of FSA in schools (possible resistance from colleagues and/or pupils' parents, etc.).

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Initial Teacher Education; formative assessment; shared assessment; university graduates; professional teaching practice

Introduction

The aim of this paper is to analyse whether having experience of formative assessment during their Initial Teacher Education (ITE) influences graduates' subsequent practice as teachers.

In this study, we wanted to research a field that to date has not been explored in depth: the opinions of ITE graduates about the assessment they experienced on their courses. We believe their views are particularly relevant because they no longer have any ties with their university and so they can freely express their opinions and beliefs. Furthermore, they have a double perspective: as student-teachers in the recent past and as practising teachers currently. As a result, the aims of this study are as follows:

- To provide an overview of current assessment practice on ITE courses, analysing the assessment systems used.

- To identify whether the formative and shared assessment they experienced at university fulfilled the educational and regulatory requirements of their ITE.
- To analyse whether their personal experience of formative and shared assessment systems during ITE enabled them to implement them in their professional practice as teachers.

Formative assessment implies a system of assessment that evaluates students' work and arrives at decisions in a way that maximises the effectiveness of the teaching and learning process by providing constant and timely feedback. It recognises the specific context and needs of the individual student but is not graded, although after receiving the feedback students may re-submit it for grading as part of a final summative assessment process (López-Pastor, Castejón, Sicilia-Camacho, Navarro, and Webb, 2011).

European universities are currently working within the framework of a European Higher Education Area (EHEA) based on a model of skills for learning which requires the use of new methodologies and assessment systems. Assessment is one of the elements that needs to evolve further in order to respond to this new way of understanding and to subsequent developments in university teaching. It is important to bear in mind that assessment is the element within the curriculum that has the greatest impact on determining what and how students learn (Álvarez 2005; Biggs 2005; Brown and Pickford 2006; Santos 2003).

Considering the pedagogic function of assessment and the need to develop systems that conform to the EHEA framework and its new methodologies, formative and shared assessment could be considered as the process that best fits these requirements (Biggs 2005; Black and Wiliam 2006; Boud and Falchikov 2006; Brookhart 2001; Brown and Glasner, 1999; Brown and Pickford 2006; Gauntlett 2007; López-Pastor 2009; Lynch, McNamara, and Seery 2012; MEC 2006; Popham 2013).

'Formative assessment' refers to the procedure for recognising and responding to student learning in order to enhance it during the process itself (Bell and Cowie 2001). A key characteristic and a fundamental element of this is feedback, which is the provision of comments to students about what they have done, with suggestions on how they might improve their next piece of work. According to Stiggins (2007), the students' role is to strive to understand what success looks like, to use feedback from each assessment to discover where they are now in relation to where they want to be and to determine how to do better next time. It is no longer enough just to provide some 'prior information' about what is required, but it is also crucial to the process to deliver 'post-information' after the work is completed (Brown and Pickford 2006).

The term 'shared assessment' relates to processes in which students are directly involved in the assessment of their learning (Boud and Falchikov 2007; Bretones 2008; Falchikov 2005; López-Pastor et al. 2011; Maclellan 2004). Shared assessment includes techniques such as: (a) self-assessment, in which students assess their own output or learning outcomes; (b) peer assessment, where students evaluate their peers' output; and (c) co-assessment, where tutors and students jointly assess the output or learning outcomes.

The use of formative and shared assessment in Initial Teacher Education (ITE) enables progress towards two objectives: (a) to help students develop the necessary skills for their future professional practice (Bretones 2008; Palacios and López 2013); (b) to achieve greater coherence between what the theory says should be done and what is actually done in school teaching. As a consequence, it is not only important to train future teachers in assessment

(DeLuca, Chavez, and Cao 2013; Maclellan 2008; Mertler 2003; Stiggins and Dufour 2008), it is equally essential that ITE students experience assessment methods other than the traditional ones and that are clearly focused on promoting learning, if we want them to be able to implement them when they are teachers (Palacios and López 2013). Fullan (2002) explains the importance of faculties of education leading by example in terms of the methodologies they believe should be implemented by primary and secondary schoolteachers. This last point is particularly relevant when you consider that the methodology and assessment methods used by tutors in faculties of education represent teaching 'baggage' which newly trained teachers will tend to apply in their own professional practice (Martínez 2013). This means that it is possible that schoolteachers learn most of what they know about teaching from internalising what they experienced as students. It is therefore necessary to be aware of the influence that the teaching and assessment of future teachers has on their careers. Lorente and Kirk (2013) consider that for teachers to be competent in using alternative assessment methods in schools, it is crucially important that they experience such practices during their initial teacher education because, as suggested by Meristo, Ljalikova, and Ljöfström (2013), sometimes the experiences that trainee teachers have during their in-school practice turn out to be very significant in their subsequent professional careers as teachers. This implies there is a strong argument for undertaking research on the use of alternative assessment practices within ITE courses. More formative and shared assessment methods need to be implemented within ITE if new teachers are to be properly prepared to address the new situations they will face in today's schools.

A relatively high percentage of ITE students believe that experiencing formative assessment processes in some modules during their initial education helped them develop their own skills in this area (López and Palacios 2012; López-Pastor 2008). The results seem to show that the use of systems and processes of shared and formative assessment during ITE is perceived as useful for their future teaching and improves the quality of the learning process and learning outcomes.

However, it seems there are factors that influence whether or not teachers actually implement what they have learnt about teaching and the assessment of learning (Giménez 1994). Fernandes et al. (2002), in their study on foreign language teacher education, found that, although future teachers value innovations, there are limits to the impact they have on how they learn to teach reflexively because some students fail to progress beyond elementary states of professional development. Giménez (1994) maintains that 'beliefs and biography need to be integrated within a reflective approach in pre-service teacher education, and I reject a particular meaning attached to 'training' at this level'. In a later study, Giménez and Lopes (2004) highlight the importance of recognising prior beliefs in ITE and creating communities of practice to support professional development. References and case studies on how to 'develop effective practices in learning, teaching and assessment in Higher Education' can be found in Brown (2015).

Later, during their professional practice, other factors influence whether or not teachers actually implement what they have learnt about teaching and the assessment of learning. For example, Martínez (2013) highlights among these other factors the culture of the school (norms, customs, beliefs and/or values). This may depend on whether the institution is public or private or on any guidelines that teachers must follow due to the regulations or the policies established by the principal or the governors. Meanwhile, Santos (2003, 79) differentiates between work environments with a culture that is open to innovation and experimentation

with new forms of assessment and new methodologies, and those where 'everything that is out of the ordinary, everything which might prove risky is either blocked or viewed with suspicion'. Hamodi and López (2012) also showed that the implementation of shared and formative assessment methods in schools can be hindered by co-workers who are reluctant to embrace innovation.

Coll, Barberà, and Onrubia (2000) and McMillan (2003) suggest the 'family' factor may also present a possible barrier or difficulty. They believe that sometimes parental involvement, which in principle is positive, can actually have negative consequences. Teachers can feel pressured to use forms of assessment that are a long way from the formative approach they would prefer but which their pupils' parents consider more objective, meaning that making decisions based on them are more defensible and conflicts are avoided. Hamodi and López (2012) also found a similar problem in their study of graduates and practising teachers, who mention the resistance of some parents to the use of alternative systems of assessment in the classroom.

All these issues raised by teachers when implementing innovation in assessment largely coincide with those raised by Fullan (2002), who argues that in the first phase of any change (initiation), the key factors that enable it are: (1) the quality of the innovations themselves; (2) access to information about them; (3) mediation with other teachers through professional communities; (4) encouragement from external agents; (5) the support of the community; (6) the availability of funds; and (7) the need to fulfil certain bureaucratic processes.

In relation to the stimulus supplied by external agents, Hamodi and López (2012) found that teachers who want to develop new systems of formative assessment in their institution feel they need some external support and advice, such as professional development seminars, to help them implement new practice within their classes and modules.

Methodology

We undertook a case study (CS) which allowed us to describe how formative and shared assessment systems are developed and implemented within a defined context (Faculty of Education) and the impact that these systems have on the future professional practice of ITE graduates. Stake (2007, 11) defines a case study as 'the study of the particularity and complexity of a particular case, to get to understand their activity in important circumstances'. According to the classification proposed by Stake, our research represents a 'CS instrument' (*ibid.*, 15–18) because it will enable us to draw conclusions from a specific experience that can be transferred to other institutions.

Context

Within our Faculty for ITE, significant work has been undertaken on the theme of formative assessment, including an ongoing Research Project established in 2004/05 in which several of the department's tutors are involved. This Project brings together a group of tutors who are experts in pedagogy, who have experience in innovative educational practice and who work well together. They are also part of a wider Network comprising academics in Spain, Europe and Latin America (López-Pastor et al. 2011). They collaborate in order to bring about what Dochy, Segers, and Dierick (2002) refer to as the change from 'an exam culture' to 'an assessment culture'. As a significant percentage of the department's tutors are involved in

this ongoing Project, there is a positive attitude towards this change and several regional and national research and innovation grants have been obtained to support our work. The Department's students are also supportive of the developments and staff also maintain positive relations with graduates who, slowly but surely, develop into primary or secondary teachers who use formative assessment with their own pupils.

Research instruments

Within the CS, we have used a combination of quantitative and qualitative techniques: (a) surveys; (b) discussion groups.

Questionnaires were issued to 46 graduates who completed their ITE between 2011 and 2015. The questions are grouped around two main blocks: (1) the formative nature of assessment systems used throughout their courses; (2) the shared responsibility and the involvement of students in the assessment process. The items used a standard 'Likert' scale of 5 levels: 0 = none or almost none; 1 = a little; 2 = some; 3 = quite a lot; 4 = a lot.

Three discussion groups (DG) were formed with graduates to look at structural sampling (to ensure appropriate representation during discussions) and provide data for analysis. The DGs were formed by the following number of people: DG1 = 5; DG2 = 7; and DG3 = 5. The variables for the members of the DGs were: (1) they must have graduated from university between 2011 and 2015; (2) their gender; (3) the specialism they studied within their teaching qualification; and (4) their teaching experience (in a rural or urban area and in public or private schools). The discussion groups were held in Spanish and were recorded to enable literal transcription. The transcriptions were subsequently checked and confirmed by two researchers.

Members of each DG articulated, through their discourse, their experiences of learning and assessment throughout their university course and how these experiences influenced them in their subsequent professional careers as teachers. In particular, the focus was on their experience of assessment formats that required the involvement of students: self-assessment, peer assessment, self-grading and grading negotiated with the tutor. To achieve this, individual comments regarding 'student participation in the assessment' were divided into the following three categories: (1) formative and shared assessment systems used in universities; (2) reproducing within the professional practice of schoolteachers the formative assessment systems they experienced at university; and (3) the difficulties they experienced in implementing formative and shared assessment as teachers.

Data analysis

For quantitative data analysis, the software programme 'SPSS 20.0' was used to produce a descriptive analysis, in which the one-dimensional variables are presented as measures of a central tendency (mean) and dispersion (standard deviation).

Two forms of inferential statistical analyses were undertaken:

- (a) An analysis of factor variance (ANOVA). The level of significance established was 0.05. The ANOVA identified: (1) if the 'specialism' studied (independent variable 'specialism') influenced their perception of the extent to which the assessment systems they experienced were 'formative' (dependent variable 'MB1'); (2) if the 'specialism' they studied influenced their perception of the extent to which the assessment systems

Table 1. Central tendency and dispersion values regarding the assessment method overall.

Regarding the assessment method in general:	Avge.	Std. dev.
Was continuous assessment used?	2.00	.816
Was formative assessment used?	1.87	.909
Comments made on the assignments could lead to a resubmission in order to improve them	1.50	.960
The quality criteria of assignments and exams were explained in advance	1.70	.916
There were similarities between the assessment methods of various subjects/modules	2.14	.930
The results and difficulties with the exam or assignment were discussed openly	1.76	.981

Table 2. ANOVA with the independent variable 'Specialism studied' and the dependent variable 'MB1'.

MB1	Sum of squares	df	Root mean square	F	Sig.
Inter-group	3.443	4	.861	2.186	.088
Intra-group	15.753	40	.394		
Total	19.196	44			

they experienced were 'shared' (dependent variable 'MB4'). Where the results of the analysis led to a rejection of the null hypothesis, a *post hoc* analysis was carried out and, assuming equal variances, the *Tukey* and *Scheffé* tests were both applied.

- (b) An analysis of bivariate correlations was carried out, selecting and including only those items whose *Pearson's* correlation coefficient was greater than 0.600, with a level of (bilateral) significance below 0.01.

For qualitative data analysis, quantitative text analysis was applied using the 'Atlas.ti Software 6.0' package. A network analysis was also undertaken (Krippendor 2004; :292). The textual analysis of networks goes beyond semantic analysis, taking into account the relative position that specific themes occupy in relation to other themes within the textual corpus, relationships that are considered implicit in the cognitive map of the participants (Álvarez Gálvez 2012, 139).

Analysis was carried out according to the following analytical categories:

- (1) Perception of the experience. Formative and shared assessment systems used in universities.
 - (a) Formative assessment systems used.
 - (b) Shared assessment systems used.
- (2) Reproducing in the professional practice of schoolteachers what they experienced at university.
- (3) Difficulties in implementing formative and shared assessment as teachers.

Results and discussion

Perception of the experience: on formative and shared assessment systems used in universities

The results show that ITE graduates had little experience of formative assessment systems, in which they could learn from their mistakes and take more control over their learning. These data are consistent with the results of other research (Gutiérrez et al. 2011; López and

Table 3. Central tendency and dispersion values regarding student involvement in the process.

Regarding student participation and involvement in the process	Avg.	Std. dev.
Assessment methods were discussed at the beginning of the course	1.63	1.123
In how many subjects/modules was the programme evaluated?	1.27	1.009
Students assessed their own work (self-assessment)	1.11	.875
Students assessed their peers' work (peer assessment)	.80	.778
The final grade was negotiated between the student and the teacher (negotiated grading)	.78	.867
The students produced and justified their own grades (self-grading).	.54	.887

Table 4. Values for the independent variable 'Specialism studied' and dependent variable 'MB4'.

Specialism	$\bar{x}B4$	σ	Typical error
Primary Education	0.73	0.50	0.18
Music Education	0.71	0.46	0.16
Physical Education	1.54	0.69	0.20
Early years Education	0.94	0.48	0.15
Total	1.03	0.62	0.09

Table 5. ANOVA on the independent variable 'Specialism studied' and dependent variable 'MB4'.

MB4	Sum of squares	gl	Root mean square	<i>F</i>	Sig.
Inter-group	4.993	4	1.248	4.121	.007
Intra-group	12.116	40	.303		
Total	17.109	44			

Palacios 2012; Lorente and Kirk 2013). Table 1 presents the average values of the first block of questions about whether the assessment system in general was formative:

The scores for items 3, 4 and 5 are not high, indicating low use of feedback, even though many studies confirm it to be an essential element of formative assessment and of models focused on learning, (Bell and Cowie 2001; Boud and Molloy 2013; Nicol, Thomson, and Breslin 2014; Stiggins 2007). Similarly, scores are low for 'discussing results and difficulties with an exam or assignment', even though research demonstrates it is important to do this (Maclellan, 2001, 6).

Using these results, we sought to identify whether there were statistically significant differences between the graduates' perceptions in terms of the specialisms they studied. The data show there are differences between graduates that studied Primary and Music ($\bar{x}B1 = 1.53$ in both cases) compared to those that took Physical Education ($\bar{x}B1 = 2.24$), although the ANOVA applied (Table 2) indicates that these differences are not statistically significant (0.088).

In contrast, the discourse provided by the ITE graduates' discussion groups has contributed nuances from the double role they have: as former student-teachers and then as practising teachers. Although only a few modules used formative assessment, the graduates (in their role as students) value them positively. Those graduates who did experience this system perfectly articulated the difference between assessment and grading. They were very positive about the formative nature of the model and the possibility it offers for constant improvement. This is of fundamental importance to all teachers. Experiencing it for themselves has enabled these graduates to first internalise and then implement constructive dialogue as part of the learning process.

For me it's best to use assessment that doesn't focus only on the mark, because formative assessment actually helps you learn from your mistakes and from what you do well ... However, if it's just about a mark it's like: is this worth a 7? What do I have to do to improve? What have I done wrong? I don't know. (P1:GE.rtf-1:117)

Yes, it is continuous and you get your own guidelines to know where you need to improve. (P1:GE.rtf-1:118)

The recognition that this type of assessment has helped them develop lifelong learning (in line with the requirements of the EHEA) has carried on throughout their teaching career. The key factor is internalising the three areas of improvement: of the process (they have learned better), of the result (they have learned more) and the permanence of their learning (the learning lasts longer):

I think you learn twice, because in the subjects where I just had an exam I learned it all and then I forgot it (two other graduates confirm this). Instead, with the subjects that had this type of assessment it's something that stays with you and you'll then apply it. (P1:GE.rtf-1:114)

The data suggest that the use of continuous assessment system (constant and ongoing assessment within the classroom) is fairly common throughout ITE courses, although formative assessment processes are less common (giving feedback, opportunity to improve work done, prior explanation of quality criteria, etc.). Quantitative data show that in the ITE institution in which this study was undertaken, two distinct teaching styles appear to coexist in terms of the type of assessment used. According to the classification used by Palacios and López (2013), these are the 'old traditional' and 'eclectic' types. The 'old traditional' style, using predominantly exams, still seems most prevalent in Spain (López and Palacios 2012; Palacios and López 2013) on ITE courses, with little use of formative and continuous assessment or involvement of students in their assessment. Sánchez and García (2002, 153) consider that the cause of this may be the lack of training of the teaching staff in innovative assessment systems. Supporting this notion, one of the most important findings of Palacios and López (2013) is that the main factor that influences whether a schoolteacher implements formative assessment in their subjects is the initial training they received and any involvement they had in projects focused on innovation in teaching. However, Fullan (2002, 67) suggests that the main difficulty is not poor teacher training, but the limited opportunities for teachers to engage in deep reflection processes which can influence the multidimensionality of change and which focuses on changing their beliefs. This view is also shared by Martínez (2013, 129), who states that 'the persistence of traditional practices of classroom assessment is not surprising considering that efforts to transform them have not been significant or systematic'.

The second set of questions focused on the involvement of students in the assessment process, the shared element. The measurements of the mean and the standard deviation are shown in Table 3.

In spite of the low scores obtained, they are still better than those obtained by Maclellan (2001), who found that 77% of students said they had never been consulted about any of these issues at the beginning of the course and only 12% of students felt their opinions had been taken into account when aspects of their modules were modified. In contrast, Maclellan obtained better results for the use of co-assessment, with 50% of students confirming they had experienced it at some stage.

Using these results, analysis was undertaken to see whether the specialism studied influenced the students' perception of the extent to which the assessment systems they

experienced were 'shared' (dependent variable 'MB4') (see Tables 4 and 5). The ANOVA applied shows that there were indeed statistically significant differences (Sig. 0.007).

The *post hoc* analysis shows that differences are found principally in two cases: (a) between the specialisms of Physical Education and Primary Education (Sig. *Tukey test* = 0.020 and Sig. *Scheffé test* = 0.049); (b) between the specialisms of Physical Education and Music Education (Sig. *Tukey test* = 0.016 and Sig. *Scheffé test* = 0.041).

The data show that student participation in assessment processes is not very frequent in ITE courses. The only item showing less extreme values relates to the discussion on assessment systems at the beginning of the course. Responses are quite dispersed, but give predominantly low or very low values. Shared assessment seems to be even less frequent than formative assessment, again coinciding with the results of other studies. We have also found little involvement of students in the discussion and evaluation of course programmes and assessment systems (meta-assessment). This finding is consistent with similar studies (Gutiérrez et al. 2011; López and Palacios 2012), although we find different nuances between some issues and others: since it seems far more usual to discuss the programme at the beginning of a course than to participate in the programme assessment at the end of the course. Overall, the results indicate that there is a very large consensus that none of these techniques are widely used, but there are different nuances between them. By analysing the average scores, we can say that, within this limited use as mentioned above, self-assessment was the most widely used and self-grading the least used technique. In between are peer assessment and then negotiated grading.

Whilst participatory assessment systems were generally underutilised during ITE courses, from their same perspective as former ITE students, shared assessment was viewed positively by all participants, especially those involving the students themselves (self-assessment, self-grading, shared assessment and grading negotiated with the teacher). These results coincide with those published elsewhere (Lynch, McNamara, and Seery 2012). The graduates appreciated a double dimension to shared assessment: reinforcing what they got right and encouraging reflection on what they got wrong, therefore combining greater cognitive skill with an approach focused on constant improvement and learning. Both are fundamental elements for teachers in the twenty-first century to develop their pupils' capacity for self-reflection.

- M4 – And we assessed ourselves.
- M1 – And if you're a little critical of yourself...
- M4 – It teaches you to accept your shortcomings and to try to improve. (P3:GE.rtf-3:38)

Negotiated grading, the dialogical process (Bourdieu and Passeron 1997) which they refer to as 'the interview', is highly valued. This process, with all that it means and symbolises, is experienced personally as something with a real emotional impact that is important in their professional lives. Attitude and aptitude are therefore combined within this assessment and grading process and both are crucial to the development of future teachers.

I loved that, and the interviews as well, they provide lots of information because both from the student and the teacher that's assessing you, a person and that also gives you information. (P1:GE.rtf-1:26)

By the time you get down to doing co-assessment, I think it was called, that is an assessment or a meeting in which you talk to your teacher and you're assessing yourself with him, and you're having a chat ... that way you know just from that situation, he is trying to find out how the

process went, if it was good, if it was bad. And in that discussion we really talked about that. (P3:GE.rtf-3:33)

In contrast, they expressed a negative attitude to the peer review processes that they experienced on their ITE courses. This is mainly due to the fact that the students had not been previously given the criteria for doing the joint assessment. This led to confusion about the assessment and conflict over the grading.

When we were assessing each other I think my colleague didn't really understand, they didn't know how to assess properly... (P1:GE.rtf-1:1)

When people were assessing their peers they didn't know ... I mean, they were assessing things that didn't have to be assessed. For example, when a piece of work is assessed they had to explain why it didn't seem that good, what can be improved, but what usually happened was they picked holes in everyone else's work just for the sake of it. That's what I think needs to be improved. (P1:GE.rtf-1:2)

Hamodi and López (2012) explain how these techniques sometimes generate conflicts between students, especially when it affects their grading, though this is usually due to the inexperience of the students. Lynch, McNamara, and Seery (2012) find that students prefer their tutor's feedback to that of their peers. Some studies indicate that peer grading processes often produce poor results, are not always very rigorous and can create bad feeling within the student group (Boud and Falchikov 2007; McMahan 2010). According to Sivan (2000), peer assessment requires prior preparation, and, together with education and practice, a cultural shift among both tutors and their students. Once these hurdles were acknowledged, further peer assessment processes were introduced in successive years in the form of simple feedback between peers to improve learning but without any affect on a student's grades. Various studies seem to indicate this is the best way to progress if we want peer assessment experiences in higher education to be positive ones (Falchikov 2007; McMahan 2010).

However, these results conflict with the arguments advanced by Ibarra, Rodríguez, and Gómez (2012, 219), when they claim that, by assessing their peers, students feel more involved in the process and they consider it sufficiently fair and accurate. They also conflict with Topping (1998), when he says that this assessment format reduces the level of anxiety experienced by university students.

In our study, we proceeded to analyse the relationship between the various items on the questionnaire using bivariate correlation analysis, for which *Pearson's* correlation coefficient must be greater than 0.600 ($r > 0.600$) with a level of bilateral significance of less than 0.01. Data in which a strong negative correlation was evident are also recorded. The results indicate that continuous assessment processes correlate negatively with the giving of a final mark for an exam alone ($r = -0.504$) and positively with the giving of a final mark for a combination of exam and other instruments, such as notebooks, reviews and assignments. ($r = 0.602$).

The use of group-based or joint portfolios conforms to the previous explanation of the quality criteria of the different assignments or exams ($r = 0.611$) and to the use of individual portfolios for delivering work ($r = 0.602$). A strong relationship was also found between the development of formative assessment processes and the use of individual portfolios ($r = 0.626$) and group portfolios ($r = 0.675$). This correlation confirms what has already been shown in relevant literature: that the portfolio is a useful and appropriate instrument for delivering formative assessment and assessment focused on learning (Barberà 2003; Klenowski 2002). It also seems to indicate that tutors who use alternative assessment methods tend to be those that more clearly articulate the quality criteria for all assignments. This

exemplifies the profile of an innovative teacher, according to the results obtained by Palacios and López (2013).

Strong relationships are also found between the use of self-assessment and peer assessment ($r = 0.750$), as well as self-grading ($r = 0.793$) and negotiated grading ($r = 0.627$). This suggests that when tutors involve students in the assessment process, they do so using a variety of techniques. This teacher typology corresponds to that identified by Palacios and López (2013) as mentioned earlier, which shows how innovative teachers tend to encourage students to assess their own work as well as their peers' work and then justify the mark they award, or that the final grade is agreed between the teacher and the pupil.

In broad terms, it can be concluded that when graduates experience first-hand formative assessment systems, they are not exposed to just a single assessment method but to a variety of methods such as portfolios, (both individual and group) and partial exams. Furthermore, when shared assessment systems are used (self-assessment, peer assessment, negotiated grading, self-grading), a variety of methods, rather than any single method, is employed.

From their role as former students, graduates have positive attitudes to having experienced formative assessment during their ITE course. These views support the opinions of Álvarez (2005) and of Martínez and Ureña (2008) about the benefits of such systems at various levels: an intellectual level (they develop critical abilities and autonomy), an affective level (greater motivation and self-reliance) and a professional level (they develop valuable interpersonal skills and strategies for the workplace) (Álvarez 2005; Bretones 2008; Ibarra, Rodríguez, and Gómez 2012). Other qualitative studies in which this positive assessment was used by the ITE graduates can also be found (Busca, Rivera, and Trigueros 2012; Hamodi and López 2012). These data also coincide with Biggs (2005) who states that formative assessment helps develop deep learning, which is related to a process more usually encountered in systems with a more formative and forming approach than with systems focused entirely on getting good grades. Fullan (2002, 132) also believes that 'ITE must provide prospective teachers with the knowledge, skills and attitudes that deliver a solid foundation for effective teaching, and for lifelong learning and development throughout their career'.

Reproducing in the professional practice of schoolteachers what they experienced at university

Initially, responses for the 'reproduction of the experience' (reproducing in professional practice formative and shared assessment systems that teachers had experienced whilst on their ITE courses) and for the 'contribution to professional practice' (development of different assessment systems in professional practice) were treated as separate categories. However, the results obtained with *Atlas.ti* showed that all the comments placed in one category were also included in the other (Figure 1).

All comments included in Figure 1 corroborate that graduates generally used the experiences they had during their ITE within their professional practice as teachers. With regard to teachers, implementing as teachers what they experienced as undergraduates, it is evident that those who have been involved in formative assessment processes during their ITE tend to implement it as teachers because as Santos (2003, 74) points out, 'the training that takes place in the Faculty of Education [...] is the baggage with which we start to practice'. Martínez (2013, 134) also states that 'the practice of teachers can also be influenced by their training'. The study by Fernández Pérez (1989) shows that teachers tend not to put into practice what

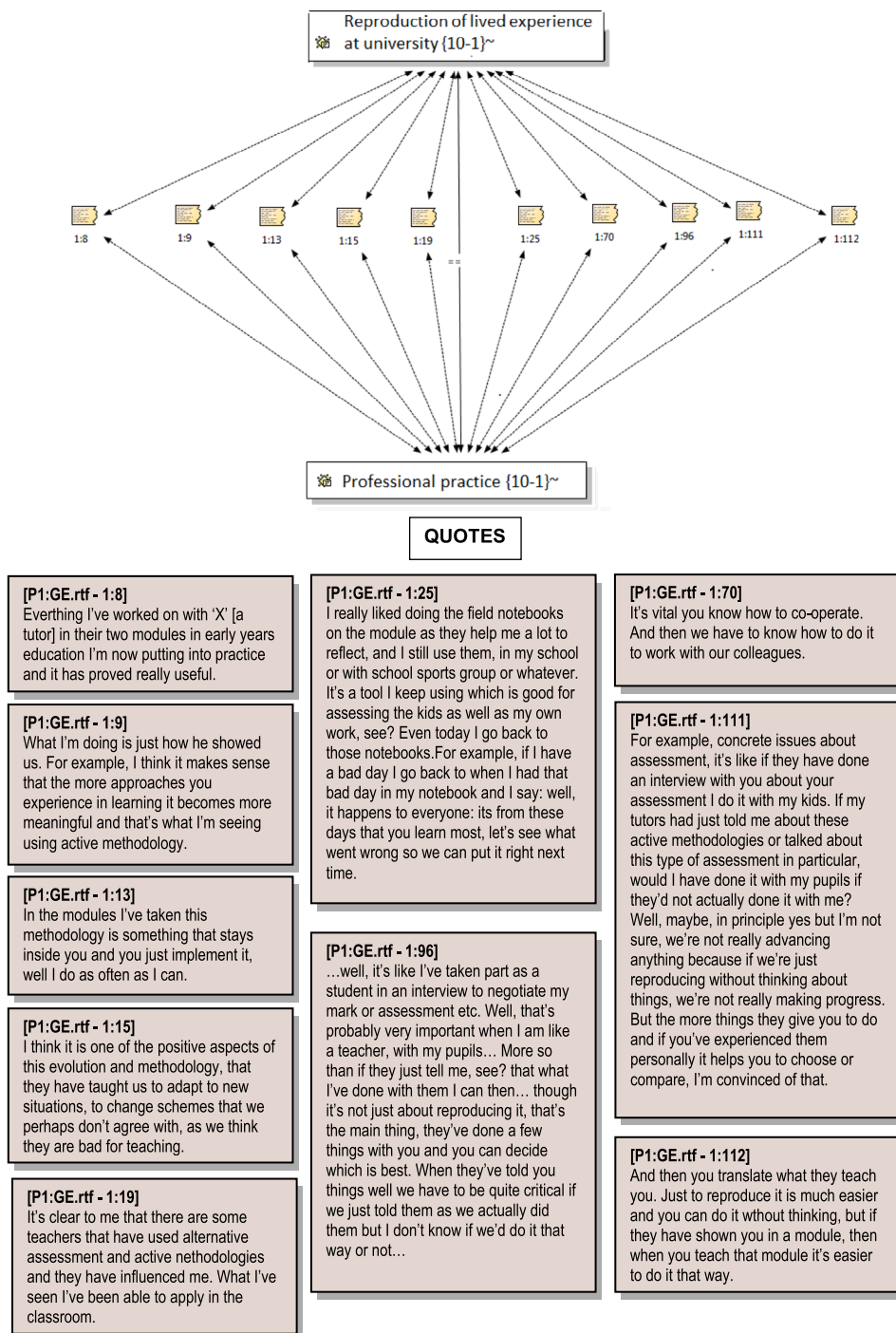


Figure 1. Analysis of the relationship between the categories 'reproduction of what was experienced personally' and 'contribution to professional practice'.

they were told to do during their ITE but rather what they actually experienced themselves as students. Therefore, during ITE, the experience of formative assessment becomes doubly important. Fullan (2002, 131) also suggests that on ITE courses, it is essential to lead by example and that teacher training staff in faculties of education should not propose methods to be used in schools that they themselves are not able to implement on their courses. Our results reinforce this point. The graduates' comments suggest that, despite not often experiencing assessment systems that required participation during their ITE courses, the modules they took that did incorporate them made a significant impact on them and so they later used them when teaching in schools. Some examples are quotes 'P1:GE.rtf-1:8' 'P1:GE.rtf-1:96' in Figure 1.

The personal experience of this new formative assessment model is what enables, both emotionally and technically, these graduates to use innovative methods with their pupils.

I liked participating in assessments as a student and now I use it a lot to assess pupils in assemblies in school. In assemblies you get a lot of feedback about what you have done, if it has helped them or not, whether they have learned or not ... It is a moment that I put in my diary because I love it that they can express themselves and tell you everything, without any kind of ... (laughs). (P1:GE.rtf-1:32).

Graduates that are about to but have not yet begun their careers as teachers are also clear about these issues, as evidenced by quote 'P1:GE.rtf-1:13'. Apart from being able to distinguish traditional from innovative practice whilst students of ITE, when they become professional teachers, they opt clearly and decisively for alternative approaches, appropriate to the new model of pupils in a networked and knowledge society (Castells 1996). They do not believe it possible to adopt this new model of formative assessment without having had first-hand experience of it. It is this hybridisation of the emotional and the experiential which, together, reinforce motivation and, consequently, significant learning. Without this combination, it would revert to being old and traditional, especially for those graduates who need security and confidence when they come to innovate as professional teachers and who would simply not implement new processes if they had not experienced them for themselves (Figure 1: quotes 'P1:GE.rtf-1:19'; 'P1:GE.rtf-1:9'; 'P1:GE.rtf-1:112')

It is a wider issue, though, than simply reproducing what has been learned, even if that has been innovative itself. It instils within graduates a tendency towards constant innovation and adaptation to specific contexts and continual changes. It provides a basis for resilience in teachers, which is essential in this new environment of global change. This new collaborative approach, itself a modern paradigm within global change, not only impacts on the teacher–pupil relationship but also on the relationship between students as an indispensable element. The internalisation and appreciation of this new model of cooperation is what makes it ever more commonplace within the world of education (Figure 1: quotes 'P1:GE.rtf-1:96'; 'P1:GE.rtf-1:111'; 'P1:GE.rtf-1:70').

Difficulties in implementing formative and shared assessment as teachers

When graduates try to reproduce as professional teachers the experiences they had of formative and shared assessment when undertaking ITE, they encounter various difficulties. The analysis of the focus groups shows two areas represent major barriers to introducing this type of assessment system to their teaching: their working environment and their pupils' families.

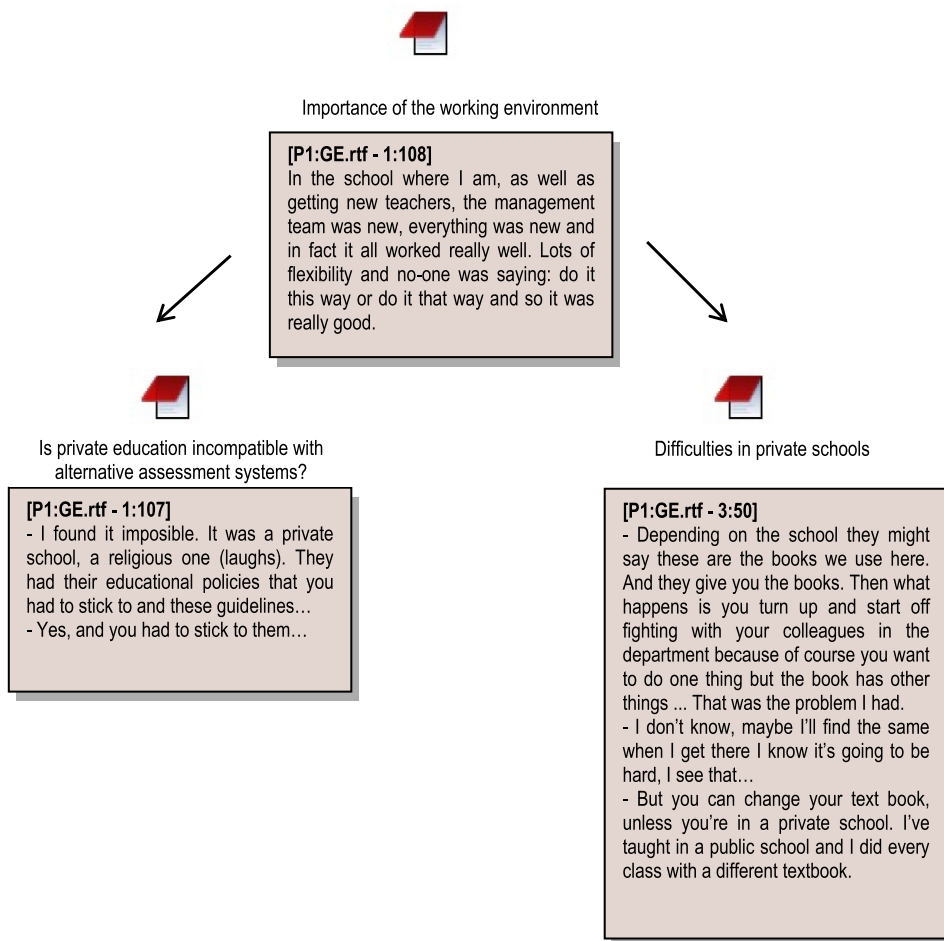


Figure 2. The importance of the working environment.

Our results show that rigid environments, where few work colleagues are innovative, impede the implementation of these types of assessment systems. This coincides with the points made by Martínez (2013) and Santos (2003). Moreover, the results also show how the pupils' families are also fundamental in facilitating or hindering the development of these assessment systems. These data are consistent with those published by authors like Hamodi and López (2012), McMillan (2003) and Coll, Barberà, and Onrubia (2000).

In Figure 2, we can see how their working environment has a significant affect in two ways.

On the one hand, it can provide a flexible environment within which to carry out educational innovations (quote 'P1:GE.rtf-1:108'), supported by resources that promote change: the difficulties of working within a more rigid environment in which any change is almost impossible (quote 'P1:GE.rtf-1:107'). The attitude of co-workers is another key variable affecting how educational innovations such as formative assessment might be implemented.

If the majority of the teaching staff have been in the institution for a long time, it becomes more difficult to introduce innovations. Conversely, if there are a high proportion of new

teachers, it becomes easier to establish an environment that is favourable towards experimentation in teaching practice. (Figure 2: quote 'P1:GE.rtf-1:108').

Some people are very reluctant, especially I see older people, they are like very reluctant to let anyone interfere in their work or change the way they do things, that's the hardest part. (P1:GE.rtf-1:59)

Within the research, differences become apparent between public teaching institutions (where teachers are appointed through a national competitive process) and private institutions (where there is no such process). Some participants within the discussion groups suggest that in private institutions, there is less freedom for teachers and they are under greater obligation to follow the institutions' own conventions (Figure 2: quotes 'P3:GE.rtf-3:50'; 'P1:GE.rtf-1:107').

The rigidity of the context is often a barrier to introducing techniques that are different to those of other colleagues, and the importance of conforming to the general work environment is emphasised (together with the consequent difficulties that non-conformity creates):

Also the work pattern that your environment and the subject give you... well, sort of automatically... it's basically impossible to go against it. The kids will learn if they learn in this way, but maybe learn less than what you think is important. Getting others to see that, well, depending on the environment you're in can be a bit difficult. (P1:GE.rtf-1: 103)

But you take this to a place where teachers are older and are more traditional and it gets really awkward. Because it also depends on the environment. You clash, you clash a lot or just a little depending on the kind of tradition they've got. (P1:GE.rtf-1:106)

As well as the working environment, the results show that the graduates can experience certain problems with the pupils' families when introducing some educational innovations. Usually parents only see exams as the proper form of assessment, without considering other alternatives (such as formative assessment). This is reflected in the graduates' comments about their role as teachers:

That's where you may find that you need to talk to the parents. [...] You speak directly with the pupil and they are OK with it and accept it and they get used to it. But the parents probably don't. And you need to talk to them and explain everything. [...] Sometimes, however many times their kids explain things, it is you that have to deal with them. Even with the older pupils, they are the ones experiencing things in school and the parents are not there day to day, though they might be involved to some extent. Then you've got to explain things to them (*another graduate nods in agreement*) because the parents had a different type of education and that's all they know, and you're teaching their children in a new way, and even for the pupil it might be different, because they had not experienced it before but now they are experiencing it but their parents aren't. (P1:GE.rtf-1:38/1:39/1:40)

Faced with these difficulties, the conviction expressed within their discourses about the usefulness of this new focus also assumes it is costly to implement because of the changes implied.

I think it is one of the positive aspects of this evolution and methodology, that they have taught us to adapt to new situations, to change schemes that we perhaps don't agree with, as we think they are bad for teaching (P1:GE.rtf-1:15)

The three-stage learning process is clear here: towards new pupils, to other teachers and the capacity for self-reflection and constant improvement of their teaching performance, which is transversal to the entire teaching and learning process. It delivers permanent improvement in professional educational skills in terms of both aptitude and attitude,

strengthening teachers' ability to deal with obstacles when faced with the difficulty of establishing new pathways. It encourages the type of resilience that is vital within the context of the global changes evident at the start of a new century. (Figure 1: quote 'P1:GE.rtf-1:25').

These problems mentioned by graduates regarding the use of formative assessment systems largely coincide with the disadvantages that, according to Fullan (2002), arise when implementing any form of educational innovation, and for which he proposes the following solutions: (a) mediation with other teachers using professional communities; (b) the encouragement of external agents; and (c) the support of the educational community. Similarly, the work of Meristo, Ljalikova, and Lofström (2013) shows the importance of the cooperation and support of other teachers during the early years as a teacher and how the experience gained during periods of in-school practice in many cases had a significant effect on their professional development, becoming a catalyst for self-reflection.

Conclusions and proposals for further studies

The results suggest that the perception of ITE graduates on the use of formative and shared assessment during their courses is that they were used at key points, although not always in the same way. For example, the use of continuous assessment does seem to be quite common, although the use of formative processes is scarce; in many subject areas, activities are assessed throughout the semester, but formative and immediate feedback is only provided on some of them.

However, student participation in the assessment process seems to take place in very few subjects, with minimal differences between the different techniques used (self-assessment, peer assessment, self-grading and negotiated grading). Therefore, the predominant trend for these ITE graduates could be positioned between 'traditional' and 'eclectic' in terms of the assessment systems they experienced. This means that there are significant barriers to introducing change or innovative methods into Elementary and Secondary school education.

The graduates' discourse has allowed us to analyse the object of this study because of the dual role they play: as former students and as professional teachers. Formative assessment systems experienced in their ITE are valued very positively because they enabled them to achieve deeper learning and made it possible for them to reproduce in their practice as teachers what they found useful to them as ITE students. Shared assessment processes are also valued highly, although they were very scarce, especially those which require the student to undertake the assessment alone (self-assessment and self-grading) or with the teacher (negotiated assessment and grading). In contrast, techniques that require the participation of other colleagues (peer assessment) are viewed negatively.

In their current role as teachers, the participants recognise that the formative and shared assessment they experienced as university students has proved valuable in their professional practice in schools. They also refer to some barriers to implementing change, concerning the workplace environment, pupils' families and other members of the educational community.

These data lead us to conclude that it is beneficial to use formative and shared assessment processes in ITE courses, but that improvements are needed in the continuing professional development of HE tutors to enable this to be implemented, so that future schoolteachers can deal with the specific issues they might find in schools when they attempt to implement these assessment systems.

It seems crucial to continue making advances in both expanding and improving formative and shared assessment systems, both in universities and schools. It is essential to establish

the link between the faculties, where future teachers are educated and actual schools where these teachers will eventually educate our children, and to deepen our scientific knowledge of the issues.

In this regard, one possible line of research for the future could be to create a collaborative action research group combining teachers and graduates who put into practice formative and shared assessment in schools, and university tutors and ITE students. Such a group would fulfil three functions: (a) to provide support to recent graduates by identifying and then finding effective solutions to these very real problems as they arise; (b) to encourage teachers to share their concerns and issues with those responsible for ITE courses; and (c) to improve the quality of ITE courses by including awareness of these issues such that future teachers learn how to deal realistically and effectively with any barriers that may arise in practice. In this way, both the school and the university would work towards their own internal development and external mutual cooperation, with the ultimate goal of improving assessment practices in both institutions.

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