Effectiveness and relevance of feedback in Higher Education: A study of undergraduate students

Diana Pereira[a,*], Maria Assunção Flores[b], Ana Margarida Veiga Simão[c], Alexandra Barros[d]

[a] University of Minho, Braga, Portugal, Portugal
[b] University of Minho, Braga, Portugal
[c] University of Lisbon, Lisbon, Portugal
[d] University of Lisbon, Lisbon, Portugal

ARTICLE INFO

ABSTRACT

This paper draws upon a wider study on assessment in higher education. It focuses on students' perceptions of the effectiveness and relevance of feedback in regard to assessment methods and self-regulation of learning. In total, 605 undergraduates participated in the study from five Portuguese public universities. Data were collected through questionnaires with open and closed-ended questions. Results revealed that feedback is perceived as more relevant, effective and in a more positive way by students who are assessed by learner-centred methods than by those assessed by traditional methods. Also, participants who are assessed by learner-centred methods or mixed methods perceived feedback as more effective in all phases of self-regulation learning than students who are assessed by traditional methods. Implications of the findings for feedback and assessment in Higher Education are discussed.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

A growing body of literature in higher education shows that feedback is a key feature of the assessment process that contributes to enhancing the quality of students' learning (Evans, 2013; Lizzio & Wilson, 2008; Nicol & Macfarlane-Dick, 2006; Price, Handley, Millar, & O'Donovan, 2010; Weaver, 2006) and to promoting important changes in the classroom (Gaertner, 2014). The ways in which students look at feedback and the learning environment in which feedback occurs influence the impact of assessment on learning (Wiliam, 2011). Effective feedback on assessment is considered to be an important tool to improve learning (Hounsell, McCune, Hounsell, & Litjens, 2008) and needs to be recognised and understood by students and teachers (Orsmond, Merry, & Reiling, 2005). If feedback is to be effective it must be timely, relevant (Ramsden, 2003) and suitable to the context (Knight & Yorke, 2003). Earlier studies show that the effectiveness of feedback may be compromised by different factors: modularization and semesterisation of the courses (Gibbs, 1999); fewer tasks (Boud & Molloy, 2013); the university policies that aim essentially to measure the achievements of the students

instead of a continuous improvement of students' learning (Price, Carroll, O'Donovan, & Rust, 2011) or the workload and the assessment practices used by the staff (Weaver, 2006). The new trends on assessment emphasise the use of practices centred on the learner, based on diverse forms of assessment (Heywood, 2000; Pereira, Flores & Niklasson, 2015) and continuous feedback (Rust, O'Donovan & Price, 2005), enabling the self-regulation of learning (Hattie & Timperley, 2007). The self-regulation of learning promotes an effective learning and motivates students to use feedback in order to regulate and improve their work (Orsmond, Maw, Park, Gomez, & Crook, 2013). For that reason, the assessment tasks should be developed in order to enable effective and sustainable feedback (Carless, Salter, Yang, & Lam, 2011). Nevertheless, more empirical work is needed regarding students' perceptions of feedback and its impact on teaching and learning (Poulos & Mahony, 2008) as well as the kind of feedback used and its impact within the context of traditional and learner-centred methods of assessment (Flores, Veiga Simão, Barros, & Pereira, 2015) and the usefulness of the feedback (Small & Attreeb, 2015). The purpose of this study is to explore students' perceptions of effectiveness and relevance of feedback in relation to different assessment methods and self-regulation of learning.

2. Feedback and assessment methods in higher education

The methods used to assess students' learning may vary from context to context and within each field of knowledge. However,

* Corresponding author.
E-mail addresses: dianapereira@ie.uminho.pt (D. Pereira), aflores@ie.uminho.pt (M.A. Flores), ana.simao@campus.ul.pt (A.M.V. Simão), alexandrafbarros@gmail.com (A. Barros).

regardless of their focus, assessment methods influence and determine different approaches to learning (Sambell, McDowell, and Brown, 1997; Struyven, Dochy, & Janssens, 2005). Earlier empirical studies suggest that students' preferences for different assessment methods depend on their nature (Birenbaum & Feldman, 1998; Sambell and McDowell, 1998; Sambell et al., 1997; Weurlander, Söderberg, Scheja, Hult, & Wernerson, 2012). Sambell et al. (1997) concluded that students prefer other assessment methods rather than the traditional ones because they stimulate learning and understanding, as opposed to traditional ones that promote memorisation. The so-called alternative methods of assessment have emerged in higher education context (Struyven et al., 2005) based on different conceptions such as "Learner-Centred Assessment" (Webber, 2012). Webber (2012) explains that methods centred on the learner such as projects, work in groups or oral presentations foster collaboration and feedback. Other authors also emphasise the need for these assessment methods to be aligned with a formative perspective based on continuous feedback enabling self-regulation of learning (Carless, 2006; Carless et al., 2011; Espasa & Meneses, 2010; Flores et al., 2015; Nicol & Macfarlane-Dick, 2006; Yorke, 2005). Struyven et al. (2005) highlight the advantages of the non-traditional methods as they enhance the quality of learning and understanding instead of memorisation. Existing literature shows that self- and peer assessment stimulate critical thinking and deep approaches to learning (Segers and Dochy, 2001) and that portfolio enables greater involvement of the student and more consistent acquisition of knowledge (Slater, 1996). Furthermore, learner-centred methods are considered to be fairer regarding learning and assessment (Flores et al., 2015) as they assess skills that are also valued in other contexts (Struyven et al., 2005).

In a classroom environment based on a formative assessment all learning tasks are likely to be assessment opportunities that enhance students' learning (Ruiz-Primo, 2011). In this context, receiving feedback is crucial for learning as it influences the ways in which students make sense of it and use it to self-regulate their learning with implications for academic achievement. Accordingly, in higher education contexts a more learner-centred teaching has been advocated with a stronger focus on students (Cornelius-White, 2007). Students are viewed as active constructors of knowledge and managers of their learning process in order to meet the competences required of them in a given training programme (Huba & Freed, 2000; Myers and Myers, 2014). Feedback is, then, of paramount importance as it fosters the communication between the teacher and the students and it is seen as an opportunity to learn and to foster the regulation of the learning process (King, Schrodt, & Weisel, 2009; Poulos & Mahony, 2008). However, Hattie and Timperley (2007) are critical of the fact that the assessment practices used provide less feedback than it would be desired. According to the authors, these assessment practices are designed for accountability purposes rather than for feedback purposes.

3. Feedback and self-regulated learning

Feedback is seen as a key element in quality teaching in so far as students learn quicker and in a more effective way when they are aware of what they have to learn and to do to improve their learning (Carless, 2006; Hounsell, 2003; Ramsden, 2003; Tunstall & Gipps, 1996). When feedback is linked to the productions of students in order to improve their learning, it is seen as a key strategy for students to do better (Black & William, 1998; Fernandes, 2005; Santos, 2008). It will have an impact on the future students' performance (Wiliam, 2011) and guide them in order to overcome their mistakes and to learn in a more significant way (Menino & Santos, 2004). However, to provide feedback is not enough if the development of relevant learning strategies and the involvement of

students in the learning tasks are to be developed (Chu, Jamieson-Noel, & Winne, 2000). Other important variables need to be taken into account such as the kinds and nature of feedback, the assessment methods and the guidelines provided to the students to undertake the learning tasks. Students appreciate to receive feedback about their performance and knowledge (Blair, Wyburn-Powell, Godwin, & Shields, 2014; Craddock & Mathias, 2009; O'Donovan, Price, & Rust, 2001). However, feedback is not always effective (Price, Handley, & O'Donovan, 2008) leading to students' dissatisfaction (Price et al., 2011) which may be related to problems of content and interpretation of feedback (Higgins, Hartley, & Skelton, 2001). Recent literature shows the existing gaps on feedback effectiveness. In a review on assessment feedback. Li and De Luca (2014) found that feedback is not always used by the students. Other studies show that although feedback given to the students may be significant (Jessop & Maleckar, 2014), it is not always synonymous with valued feedback to them (Blair & McGinty, 2013). Crisp (2007) also found that feedback is not fully used by the students, especially if the grade received was satisfactory. However, the study by Small and Attreeb (2015) found that the feedback given is valued and used by the students even if the grade has been satisfactory (Small & Attreeb, 2015). The timing of feedback is also an important key feature, since if it is not timely it may become irrelevant to the students (Gibbs & Simpson, 2002). Some of these conditions may lead to an ineffective feedback that fails in terms of learning support (Price et al., 2011).

Shute's (2008) review proposes guidelines to feedback effectiveness: (1) feedback should focus particularly on the task itself, not on the student, producing answers to improve the students' performance (what, how and why); (2) feedback should not discourage learners or even produce comparisons; and (3) when feedback is given it should be taken into account the type of learning that is occurring (immediate feedback for hard tasks and delayed feedback for simple tasks). Also Gibbs and Simpson (2002) identified the conditions in which feedback influences learning. Among other conditions it is proposed that feedback should be regular, detailed, on time, relevant, and focused on the learning process and on students' performance. Price, Handley, & O'Donovan (2008) also claim that for feedback to be effective it has to have a clear purpose, clear standards and being helpful for students' professional future.

Meta-analyses (Cornelius-White, 2007; Black & William, 1998; Hattie & Jaeger, 1998; Hattie, Biggs, & Purdie, 1996; Kluger and DeNisi, 1996) suggest that feedback plays a key role in students' learning in higher education and may be used to enhance their competences to self-regulate their learning. In fact, while students may see the purpose of the feedback as information to improve, teachers may see firstly feedback as motivating to self-regulation (Nicol & Macfarlane-Dick, 2006; Robinson, Pope, & Holyoak, 2013).

Zimmerman (2000) defined self-regulated learning as the degree to which learners meta-cognitively, motivationally, and behaviorally manage their own learning process. Particularly, learners are meta-cognitively aware and motivationally connected to how they regulate their learning by actively adapting strategies to develop specific learning tasks. Additionally, Zimmerman (2002) presented the process of regulating one's own learning in three cyclical self-regulatory phases: (i) the forethought phase, during which learners set objectives and plan before a task: (ii) the performance phase, in which learners monitor and control their performance while they develop the task, and (iii) the self-reflection phase, in which learners react to their own outcomes once the learning process is completed. These phases may help clarify learners' repeated efforts to learn in terms of quantitative and qualitative differences (i.e., proactive vs. reactive self-regulators).

In monitoring students' tasks, self-regulated learning is seen as a cyclical process in which feedback of previous tasks may be used

by the students to do adjustments in the strategies they adopt, cognitions, affects and behaviours in the currents tasks (Bandura, 1993; Zimmerman, 2000). However, the students do not always experience previous tasks that enable them to develop the necessary mechanisms to regulate their behaviour and learning in terms of formative feedback. To provide feedback to students' performance (external feedback) may help them to reflect about their competences, learning and strategies in order to solve given tasks. This kind of reflection – internal feedback – may be useful for students to adjust to the present task. The internal feedback provides the students with the information about the quality of the cognitive process as well as the nature of the outcomes. Thus, feedback is part of the self-regulated learning process and it is seen as a mechanism which monitors the entire process without which it would be impossible to look at the progress in terms of learning (Butler & Winne, 1995). Feedback is internal or externally generated and helps modeling and changing the attitudes of the students in regard to their learning (Butler & Winne, 1995). Perera, Lee, Win, Perera, & Wijesuriya (2008) suggest that medical students were expecting that feedback would be incorporated in all tasks of teaching from the very beginning of the programme in order to promote their self-regulated learning. The same study concluded that feedback was particularly important to save students with weaker performances. Thus, feedback is no valid in the vacuum, as in order to have an impact it has to be adapted to a given learning context. According to Hattie and Timperley (2007:86), effective feedback implies the answer to the following questions: Where I am going to? (What are my goals?); How am I going? (Am I progressing well in the right direction?) and Where to next? (What kinds of activities do I need to do to progress better?). The authors relate these main questions to different feedback dimensions: *feed up; feed back and feed forward*. Therefore, when teachers and students search for the answers to these questions the feedback is more effective and the learning environment is more meaningful.

4. Methods

This paper reports on findings from a broad piece of research aimed at analysing *feedback* and assessment methods in higher education. The study was carried out in five public universities in Portugal. The research questions which this paper seeks to illuminate are:

1. Are there significant differences in the perceptions of effectiveness and relevance of feedback practices depending on the assessment methods (traditional, learner-centred and mixed methods) used?
2. Are there any differences in perceived effectiveness and relevance of feedback practices in different phases (forethought, performance or self-reflection) of the self-regulated learning process?
3. What is the relation between the mode of feedback and the perception of effectiveness and relevance of feedback?
4. Are there any differences in perceived effectiveness of feedback practices in different phases and in the context of different assessment methods?

4.1. Participants

The sample consisted of a convenience sampling of 605 undergraduate students, including 392 (64.8%) male and 213 (35.2%) female. The participants' mean age is 21.78 (*SD*: 2.79) years. They were enrolled for different programmes in five public universities in Portugal: 48 in Biology (7.9%), 186 in Education

Table 1
Participants (N = 605).

	Female n (%)	Male n (%)	n	% Total by programme
Biology	36 (6%)	12 (2%)	48	7.9%
Education	172 (28.4%)	14 (2.3%)	186	30.8%
Law	28 (4.6%)	9 (1.5%)	37	6.1%
Economics	11 (1.8%)	17 (2.8%)	28	4.6%
Mechanic Engineering	9 (1.5%)	123 (20.3%)	132	21.8%
Nursing	102 (16.9%)	16 (2.6%)	118	19.5%
Pharmacy	22 (3.6%)	5 (0.8%)	27	4.5%
Medicine	12 (2%)	17 (2.8%)	29	4.8%
% Total by gender	392 (64.8%)	213 (35.2%)	605	100%

(30.8%), 37 in Law (6.1%), 28 in Economics (4.6%), 132 in Mechanic Engineering (21.8%), 118 in Nursing (19.5%), 27 in Pharmacy (4.5%) and 29 in Medicine (4.8%) (see Table 1).

4.2. Data collection and analysis

This study is part of a wider study (Flores et al., 2015) focusing on assessment in higher education. Following the approval of the study by the Ethics Committee a face-to-face survey was administered in the school year 2012/2013 to all 605 3rd year undergraduate students. The students were asked to answer the questionnaire taking into account all courses that were attending that year. One researcher collected the questionnaires in a lecture theatre in all of the five universities. Confidentiality was guaranteed and informed consent obtained. To gather data a questionnaire was used "*Feedback practices*". It was developed for the Portuguese context and it was based on existing relevant literature (e.g. Butler & Winne, 1995; Flores et al., 2015; Poulos & Mahony, 2008; Zimmerman, 2000). It consists of a total of 20 items and an open-ended question. These items focus on perceptions, modes and phases of feedback practices. Students would have to give their answers using the 5-point scale, ranging from 1 = "Strongly disagree" to 5 = "Strongly agree". Some items are reversed in order to avoid the acquiescence tendency. The questionnaire measured the perception of feedback as a relevant practice (6 items. e.g., i.12. "*I felt it was an information I should value*"; i.19. "*I felt it was a constructive analysis*" (Cronbach's alpha: .76); The adequacy/constructive mode of the feedback practices (5 items: e.g., i.7. "*It made clear to me what I should do to accomplish my goals*"; i.11. "*It made clear to me the positive and the negative aspects of my work*"; (Cronbach's alpha: .64); The perceptions of effectiveness of feedback practices (3 items. e.g., i.10. "*It helped me to compare my real performance with my ideal performance*"; i.17. "*It helped me to really improve my performance*" (Cronbach alpha: .48); and the phases of self-regulated learning when feedback is predominant and perceived as helpful in the beginning (forethought phase), during the learning process (performance phase) or at the end (self-reflection phase) (6 items. e.g. i1 "*It helped me, during the semester, to see if the way I was working would help me to achieve the goals I set up*"; it 15. "*In the beginning of the semester, it helped me to define my academic goals*". (Cronbach's alpha: .87). The phases of self-regulation of learning were based on phases present in Zimmerman work's (2002): the forethought phase; the performance phase and self-reflective phase. Psychometric properties of the questionnaire were assessed through facial validity but also with the analysis of the internal consistency of each scale, considering Cronbach's alpha and the correlations of each item with the total of the scale (if item deleted to avoid spurious relations). All items have correlations above .30 with their scale and the omission of each item would diminish Cronbach's alpha of the scale. The only exception is item 16. "*Feedback was given in a moment that no longer permit me to improve by*

Table 2
Perceptions of feedback: mean and standard deviation by assessment methods.

	Traditional methods (n = 186)	Learner-centred methods (n = 168)	Mixed methods (n = 251)
Perception of effectiveness of feedback	3.07 (.53)	3.28 (.60)	3.22 (.61)
Perception of feedback as a relevant practice	3.23 (.60)	3.51 (.57)	3.39 (.56)

performance", from effectiveness scale. If this item was deleted, Cronbach's alpha of efficacy scale would rise to .63. Nevertheless, considering facial validity of the item, a decision was made to maintain it. The open question regards students' perceptions about feedback in general "In my opinion what is feedback?".

A second questionnaire is related to methods of assessment, traditional methods (e.g. tests, examinations) and learner-centred methods (e.g. portfolios, project work in teams). Students were asked to indicate the frequency of the methods in the different programmes. For each method, students would say if the different assessment methods were not at all or seldom used (1) or if they were usually or always used (2). Methods included written tests, group oral presentations in classroom, group work, reports done in group, project work in teams, individual assignments, individual reports, individual written reflections, oral tests, individual project work, individual oral presentations in classroom, individual portfolios, individual critical reviews of texts, critical reviews of texts in group, portfolios in group, group essays and individual essays. Based on the answers to this questionnaire and on previous research on assessment methods (e.g., Flores et al., 2015), a committee of four psychological educational psychologists defined three types of assessment methods based on the more discriminative items among the most recurring methods: traditional assessment methods (when written tests, oral tests or exams are usually or always used and individual portfolios, or portfolios in group or project work in teams or reports done in group are seldom or never used), learner-centred assessment methods (when individual portfolios, portfolios in group, reports done in group, project work in teams are usually or always used and written tests, oral tests or exams are seldom or never used) and a mix of assessment methods (the remain cases, when this dichotomy between traditional and learner-centered methods is not so sharp).

To answer to the research questions, data were processed with IBM SPSS Statistics, v. 22. Data were analysed with univariate and multivariate methods to test differences between groups and with descriptive statistics, such as mean, standard deviations and correlations between variables.

5. Results

The following results provide evidence about assessment and self-regulation of learning in the students' perceptions of feedback practices. The results are organised under the reference of the research questions presented above. The first theme focuses on the perceptions of effectiveness and relevance of feedback, considering assessment methods used (question 1). The second theme also concerns students' perceptions of effectiveness and relevance of feedback practices, but in relation to phases of self-regulation of the learning process (question 2). The third theme corresponds to the relations between modes and perceptions of feedback (question 3). The four theme corresponds to the perceptions of effectiveness of feedback when given in different phases of self-regulation learning process, considering also the assessment methods used (question 4).

5.1. Assessment methods and perceptions of effectiveness and relevance of feedback

A two-way MANOVA was performed to analyse differences in perceptions of feedback, namely the perceptions of relevance and effectiveness of feedback, depending on assessment methods (question 1) and on the phases of self-regulation of the learning process (question 2), taking into account the correlations between the two dependent variables and the possible interaction of the two independent variables.

Results, using Roy's largest root, reveal that there are significant differences in the perception of relevance and efficacy, depending on the type of assessment methods used ($\lambda = 9.02$ (2, 593); p = .001; $n^2p = 18.04$; $\pi = .97$) and depending on the phase of the self-regulation process ($\lambda = 4.15$ (3, 593); p = .006; $n^2p = 12.44$; $\pi = .85$). The interaction of the two independent variables has no statistically significant effect ($\lambda = 1.74$ (6, 593); p = .109; $n^2p = 10.45$; $\pi = .66$). Effect-sizes, assessed by partial eta-squared, reveal a value of .030 for assessment methods, .021 for phases of self-regulation and .017 for the interaction between the two independent variables.

Concluding that the factor "kind of assessment methods" has a significant effect, an univariate ANOVA for each of the dependent variables – perception of relevance and perception of efficacy of feedback – was conducted and followed by post-hoc Scheffé test. Results of post-hoc comparisons reveal that feedback is perceived as a more relevant and effective practice by students assessed by learner-centred methods and by mixed methods than by students assessed by traditional methods (p < .05) (see Tables 2 and 3).

5.2. Perceptions of feedback in relation to phases of self-regulation of the learning process

Having identified an effect of the phases of self-regulation process in which feedback is given, an one-way ANOVA was performed to analyse differences in each of the dependent variables, namely the perceptions of effectiveness and relevance of feedback, depending on the phase in which feedback is given. Those univariate tests were followed by post-hoc Scheffé test. Data obtained enable to identify significant differences between groups but only referring to the perception of relevance. There are no statistically significant differences concerning the perception of efficacy. Results of Scheffé test reveal that the perception of feedback as being a relevant practice (p < .01) is significantly higher when feedback is given during the performance phase of self-regulation of learning process than when it is given at the beginning or at the end (see Tables 4 and 5).

5.3. Modes and perceptions of feedback

In order to investigate the relationships between the mode of feedback and the perceptions of feedback by the students (question 3), Pearson correlations between the two variables were calculated (see Table 6).

Table 3
One-way ANOVA: differences in perceptions of feedback in groups defined by assessment methods.

	F (2 d.f.)	P
Perception of effectiveness of feedback	5.43	.005[*]
Perception of feedback as a relevant practice	8.57	.0001[*]

[*] p < .01.

Table 4
Perceptions of feedback: mean and standard deviation by phase when feedback is predominant.

	Frequent feedback in forethought phase (n = 99)	Frequent feedback in the performance phase (n = 102)	Frequent feedback in the self-reflection phase (n = 121)
Perception of effectiveness of feedback	3.09 (.54)	3.20 (.62)	3.11 (.61)
Perception of feedback as a relevant practice	3.29 (.53)	3.44 (.60)	3.23 (.67)

A more positive mode of feedback (with special attention to positive aspects and suggestions of ways to enhance students' performance) is positively and significantly (p < .01) related to the perception of effectiveness and to the perception of feedback as being a relevant practice.

5.4. Effectiveness of feedback in relation to different assessment methods throughout the phases of self-regulation learning

The question 4 aimed to explore if there are differences in perceived effectiveness of feedback practices given in different phases when considering traditional, learner-centred and mixed assessment methods. ANOVA results, including post-hoc Scheffé tests, reveal that feedback is seen as less effective in traditional assessment methods than in mixed or learner-centred methods in all phases of the self-regulation of learning process (p < .05 in forethought phase and p < .01 in performance or self-reflection). Additionally, in learner-centred methods, the mean of perceived effectiveness of the feedback given during the performance phase of the learning process is also significantly higher than the mean of perceived effectiveness of the feedback given in mixed methods (p < .05). As mentioned above, in the forethought and in the self-reflection phase of the self-regulation process, perceived effectiveness of the feedback given in learner-centred methods is significantly higher (p < .01) than perceived effectiveness of the feedback given in traditional assessment methods. However, in these phases, there are no significant differences in perceived effectiveness of the feedback given, between learner-centred and mixed assessment methods (see Tables 7 and 8).

Qualitative data obtained through the open-ended question suggest that feedback is seen by the students as a facilitator of the learning process providing orientation and monitoring of students' learning.

Feedback is a way of improving your work in order to guide you to manage and achieve goals and maximise your learning goals (P. 5).
Feedback means to exchange information on a given topic between actors in the educational process. It allows the confirmation about the development of the learning process. It helps to review and make a reflection, checking what needs to be improved. (P. 6).
Feedback means a critical opinion, I mean the teachers' conclusion after the assessment of my work. In this sense, feedback is important to improve your performance. If there is no feedback you never know how to develop . . . (P. 9).
Feedback reflects the process of support and coordination that a particular person (teacher, for example) gives to the other in a

process of teaching and learning. This allows, when done frequently, the improvement of my performance and better results (P.12).
Feedback is a form of motivation, but it is fundamentally a possibility to guide your work (P. 18).
The feedback, in addition to the demonstration of respect for my work, is the best way to improve my performance because it allows adjusting my working method with the tasks that I will have to perform. Regarding the tests/examinations the only feedback received is the mark at the end and I do not consider it as a positive thing (P.21).
Feedback is a form of evaluation, which explains what was done well and what went wrong, in order to help to improve the performance of something or someone (P. 45).
Feedback is a kind of tutorial that enables the improvement of the work allowing the improvement of my performance . . . It should be seen as an improvement process that implies reflection and constructive criticism (P.55).

Other students state that feedback enables the self-regulation of the learning process during the performance phase. Qualitative data also show that students who stated that feedback allows the self-regulation of the learning process during the performance phase are assessed by mixed methods and by learner-centred methods. None of the students who identified feedback as a promoter of the self-regulation of learning in the performance phase were assessed by traditional methods. These findings are in accordance with the results presented in Table 7 which shows that in this scale the students who consider that the given feedback is effective at the performance phase are assessed by learner-centred methods and mixed methods than traditional methods.

Feedback means support, guidance, the valorisation of the work that is being performed so that you can continuously progress and improve (P. 4).
Feedback is the monitoring and evaluation of the work done along the way, so I can change, correct or improve some situations (P.7).
The feedback should be given during the semester and not just at the end, so it may be constructive. It should focus on the positive aspects and the negative ones. On the other hand, it is necessary to explain why and how to improve (P.10).
It means monitoring my learning during the process and somehow indicates how to improve and change the negative aspects in order to meet your potential as a student (P. 13).
Feedback is the relationship established with the teacher. It is important to receive feedback throughout the semester to be able

Table 5
One-way ANOVA: differences in perceptions of feedback in groups defined by the phase of self-regulation process when feedback is predominant.

	F (3 d.f.)	p
Perception of effectiveness of feedback	2.43	.06
Perception of feedback as a relevant practice	4.12	.007[*]

[*] p < .01.

Table 6
Correlations between the modes and perceptions of feedback (N = 605).

	Form of feedback
Perception of effectiveness of feedback	.65[*]
Perception of feedback as a relevant practice	.70[*]

[*] p < .01.

Table 7
Effectiveness of giving feedback in different phases: mean and standard deviation by assessment methods.

	Traditional methods (n = 186)	Learner-centred methods (n = 168)	Mixed methods (n = 251)
Effectiveness of giving feedback at the forethought phase	2.96 (.87)	3.24 (.78)	3.12 (.82)
Effectiveness of giving feedback at the performance phase	2.89 (.87)	3.42 (.83)	3.18 (.84)
Effectiveness of giving feedback at the self-reflection phase	2.91 (.91)	3.35 (.77)	3.20 (.81)

to improve my performance. Feedback is therefore a response to performance and it helps to achieve goals (P.14).

Feedback is about the guidelines and information that will be given by the teacher after receiving any evaluation element. It must be given to the student throughout the process. Its purpose is to improve my work and learning (P. 31).

Feedback is a form of a continuous assessment, since it is a correction of what was done. (P. 59).

6. Conclusions and discussion

This paper sets out to investigate the effectiveness and relevance of feedback within the context of Higher Education. Earlier research highlights that the effectiveness of feedback represents a quality feedback that is valued as a part of the learning process by the students (Ferguson, 2011). The feedback should also be understood in an integrated approach along with the assessment process and the curriculum (Boud & Molloy, 2013) being aligned with criteria, standards and goals (Ferguson, 2011). More importantly, teachers' and students' conceptions of assessment need to be shared; otherwise feedback may not be suitable (Nicol & Macfarlane-Dick, 2006).

Findings from this study suggest that feedback is perceived as more relevant and effective by students assessed by learner-centred methods and by mixed methods than traditional ones. In fact, existing literature shows that the learner-centred methods are systematic and continuous methods that enable negotiation, collaboration and interaction between teachers and students (Flores et al., 2015). Earlier literature reveals that assessment tests or examinations provide less formative feedback than other methods, but they continue to be frequently used in higher education (Blair et al., 2014). Brown (2007) suggests that the problem may not lie in the method itself but in the lack of feedback provided when they are used. Hattie and Timperley (2007) also found that the tasks given to the students may increase their effort and their engagement if those are more challenging and be indicative of different experiences, leading to an effective feedback and reducing the gap between existing and desired understandings. In their perspective, the assessment test fails in the transmission of feedback information that helps students and teachers to know how their performance is going. Perhaps, due to the nature and features of learner-centred methods the feedback is likely to be more relevant and effective. However, Price et al. (2010) found that students as judges do not always recognise the effectiveness and benefits of feedback. Orsmond et al. (2005) suggest that feedback should follow the entire learning process and not only the end of the process. Also, Lea and Stierer (2000) found that feedback of a written work is not always given until the module is completed.

The study by Lea and Stierer (2000) and Orsmond et al. (2005) may be related to the findings from this study, if it is considered that the traditional methods (written tests) are more likely to produce feedback at the end of the process and the learner-centred methods during the entire process. Furthermore, this may influence studeivnts' perceptions regarding the effecteness and relevance of feedback. Therefore, the design of the assessment methods should be directed to a continuous engagement of the student and adapted to the feedback process (Orsmond et al., 2013), encouraging active, autonomous and responsible learners (Flores et al., 2015). Also, self- and peer assessment enhance students' ability to use feedback (Orsmond et al., 2013).

As for the modes and perceptions of feedback special attention to positive aspects of feedback and the suggestions of ways to enhance students' performance is clearly related to the perception of effectiveness and relevance of feedback practices. Feedback is perceived by undergraduate students as more effective and relevant when it is used in a more positive way. Also, feedback is perceived in a more positive way when learner-centred methods are used. The study by Flores et al. (2015) shows that students who are used to traditional methods give equal importance to receiving feedback, and to the reliability of the sources as students who are assessed through learner-centred methods. The literature suggests the importance of self-regulation of learning, namely its contribution to regulate how the students' work is being developed. The self-regulation of learning and the feedback are closely related. When students receive feedback and use it they are regulating their own learning and identify what must be improved in their work (Orsmond et al., 2013). Furthermore, good feedback is proposed by Nicol and Macfarlane-Dick (2006) as a tool that helps students to self-correct their problems. Findings related to the perceptions of feedback in relation to phases of self-regulation of the learning process show that when feedback is given during the performance phase of self-regulation of the learning process, students perceive feedback practices as more effective and relevant, than when it is given at the beginning or at the end of the learning process. Again, these findings are corroborated by earlier studies which show that feedback should be provided during the process (Lea & Stierer, 2000; Orsmond et al., 2005), enabling better self-regulation of learning (Gibbs and Simpson, 2004). Studies explain that teachers use feedback in a summative way (Beaumont, O'Doherty, & Shannon, 2011; Carless et al., 2011; Orrell, 2006) as a way to justify the marks (Li and De Luca, 2014; Price et al., 2010) not being suitable to help students to suppress the gaps between the current and desired performance (Blair et al., 2014).

Beaumont et al. (2011) found that students perceived quality feedback when it does not only produce a summative judgment of their work; instead it produces dialogue that stimulates students' improvement. The study by Havnes, Smith, Dysthe, & Ludvigsen (2012) found that feedback without grades is not frequent, and evidence shows that students prefer to be assessed by peer-assessment and feedback instead of marks (Scaife & Wellington,

Table 8
One-way ANOVA: differences in perceived effectiveness of giving feedback in different phases in groups defined by assessment methods.

	F (2 d.f.)	P
Effectiveness of giving feedback at the forethought phase	5.52	.004[*]
Effectiveness of giving feedback at the performance phase	16.97	>.0001[*]
Effectiveness of giving feedback at the self-reflection phase	13.04	.0001[*]

[*] p < .01.

2010). Nicol, Thomson, & Breslin (2014) also state that a peer review of feedback brings benefits for students' learning, for evaluation and for regulation of their own and peers' work, being reflective learners through the evaluative judgment. However, the Quality Assurance Agency for Higher Education (2007) notes that the contexts of higher education are mainly summatives, leading to a reduction in formative assessment practices and consequently less effective feedback.

Regarding the effectiveness of feedback in relation to different assessment methods throughout all phases of self-regulation learning, when traditional assessment methods are used, feedback is seen, by students, as less effective than in cases where mixed or learner-centred methods are used. During the performance phase of the learning process, perceived effectiveness of the feedback given when learner-centred methods are used is also higher than when mixed methods are used. During the forethought and the self-reflection phase of the self-regulation process, the perceived effectiveness of the feedback given in learner-centred methods continues to be higher than perceived effectiveness of the feedback given in traditional assessment methods but there are no differences when assessment is based on mixed methods. The students who regulate their learning are more likely to be effective students (Butler & Winne, 1995) and are more motivated to improve their learning (Zimmerman, 2002). Nicol and Macfarlane-Dick (2006) propose that teachers should look at assessment practices and relate them to the self-regulation model and the seven principles suggest by them to allow the identification of its weaknesses. For example, the tests or examinations are known as terminal and summative assessments, therefore when feedback is given (if given) the students do not have opportunities to put into practice the feedback received in a future performance (Blair et al., 2014). This implies that students are unable to engage in the phase of self-reflection (feed forward) of self-regulation of learning. Findings of this research found that students see feedback as more effective and relevant during the performance phase than the forethought and self-reflection phase. It should be noted that assessment methods centred on students' learning seem to be methods more suitable to an effective and relevant feedback and to a more effective feedback in all phases of self-regulation learning to the detriment of the traditional methods.

This study has some limitations and suggests avenues for further research. It would have been important to conduct interviews with the students to clarify further some aspects. Thus, limitations emerged regarding the variance due to differences in assessment orientations in different courses (e.g., assessment for learning vs. assessment for grading), the differences in the purpose of the assessment in the different courses (i.e., summative vs. formative.) and regarding the differences in the type of task, depending on the nature of the assessment task, the development of skills and the type of feedback. Furthermore, research is needed particularly on the effectiveness of feedback, as the same type of feedback could be effective and ineffective depending on the way it is used. It also depends on the student's capabilities and motivation to self-regulate his/her leaning in a particular course.

This research also suggests that teachers should use learner-centred methods and should avoid traditional exams (as a single method to assess students' learning) due to their characteristics of narrow and summative nature that prevent self-regulated learning in all phases and the effectiveness of feedback. Further research is needed focusing on understanding which differences exist in given feedback through oral or written modes in traditional and learner-centred methods. Also, more needs to be done regarding all phases of self-regulation of learning and the effectiveness and mode of feedback within the context of the use of traditional and learner-centred methods as well as students and university teachers' understandings of feedback in practice.

Acknowledgment

References

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, *28*, 117–148. http://dx.doi.org/10.1207/s15326985ep2802_3.

Beaumont, C., O'Doherty, M., & Shannon, L. (2011). Reconceptualising assessment feedback: a key to improving student learning? *Studies in Higher Education*, *36*, 671–687. http://dx.doi.org/10.1080/03075071003731135.

Birenbaum, M., & Feldman, R. (1998). Relationships between learning patterns and attitudes towards two assessment formats. *Educational Research*, *40*, 90–97. http://dx.doi.org/10.1080/0013188980400109.

Black, P., & William, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, *5*, 7–74. http://dx.doi.org/10.1080/0969595980050102.

Blair, A., & McGinty, S. (2013). Feedback dialogues: exploring the student perspective. *Assessment & Evaluation in Higher Education*, *38*, 466–476. http://dx.doi.org/10.1080/02602938.2011.649244.

Blair, A., Wyburn-Powell, A., Goodwin, M., & Shields, S. (2014). Can dialogue help to improve feedback on examinations? *Studies in Higher Education*, *39*, 1039–1054. http://dx.doi.org/10.1080/03075079.2013.777404.

Boud, D., & Molloy, E. (2013). Rethinking models of feedback for learning: the challenge of design. *Assessment & Evaluation in Higher Education*, *38*, 698–712. http://dx.doi.org/10.1080/02602938.2012.691462.

Brown, J. (2007). Feedback: the student perspective. *Research in Post-Compulsory Education*, *12*, 33–51. http://dx.doi.org/10.1080/13596740601155363.

Butler, D. L., & Winne, P. H. (1995). Feedback and self-regulated learning: a theoretical synthesis. *Review of Educational Research*, *65*, 245–281. http://dx.doi.org/10.3102/00346543065003245.

Carless, D. (2006). Differing perceptions in feedback process. *Studies in Higher Education*, *31*, 219–233. http://dx.doi.org/10.1080/03075070600572132.

Carless, D., Salter, D., Yang, M., & Lam, J. (2011). Developing sustainable feedback practices. *Studies in Higher Education*, *36*, 395–407. http://dx.doi.org/10.1080/03075071003642449.

Chu, S., Jamieson-Noel, D., & Winne, P. (2000). The role of feedback on studying, achievement and calibration. *Paper presented at the annual meeting of the American educational research association*.

Cornelius-White, J. (2007). Learner-Centered teacher-Student relationships are effective: a meta-analysis. *Review of Educational Research*, *77*, 113–143. http://dx.doi.org/10.3102/003465430298563.

Craddock, D., & Mathias, H. (2009). Assessment options in higher education. *Assessment & Evaluation in Higher Education*, *34*, 127–140. http://dx.doi.org/10.1080/02602930801956026.

Crisp, B. (2007). Is it worth the effort? How feedback influences students' subsequent submission of assessable work. *Assessment & Evaluation in Higher Education*, *32*, 571–581. http://dx.doi.org/10.1080/02602930601116912.

Espasa, A., & Meneses, J. (2010). Analysing feedback processes in an online teaching and learning environment: an exploratory study. *Higher Education*, *59*, 277–292. http://dx.doi.org/10.1007/s10734-009-9247-4.

Evans, C. (2013). Making sense of assessment feedback in higher education. *Review of Educational Research*, *83*, 70–120. http://dx.doi.org/10.3102/0034654312474350.

Ferguson, P. (2011). Student perceptions of quality feedback in teacher education. *Assessment & Evaluation in Higher Education*, *36*, 51–62. http://dx.doi.org/10.1080/02602930903197883.

Fernandes, D. (2005). Avaliação das aprendizagens: reflectir, agir e transformar. In Futuro Congressos e Eventos (Ed.), *Congresso internacional sobre avaliação na educação* (pp. 65–78).Curitiba: Futuro Eventos Livro do 3.

Flores, M. A., Veiga Simão, A., Barros, A., & Pereira, D. (2015). Perceptions of effectiveness, fairness and feedback of assessment methods: a study in higher education. *Studies in Higher Education*, *40*, 1523–1534. http://dx.doi.org/10.1080/03075079.2014.881348.

Gaertner, H. (2014). Effects of student feedback as a method of self-evaluating the quality of teaching. *Studies in Educational Evaluation*, *42*, 91–99. http://dx.doi.org/10.1016/j.stueduc.2014.04.003.

Gibbs, G. (1999). Using assessment strategically to change the way students learn. In S. Brown, & A. Glasner (Eds.), *Assessment matters in higher education: choosing and using diverse approaches* (pp. 40–53).Buckingham: SRHE and Open University Press.

Gibbs, G., & Simpson, C. (2002). *Does your assessment support your students' learning*. . http://isis.ku.dk/kurser/blob.aspx?feltid=157744.

Gibbs, G., & Simpson, C. (2004). Conditions under which assessment supports students' learning? *Learning and Teaching in Higher Education*, *1*, 3–31.

Hattie, J., Biggs, J., & Purdie, N. (1996). Effects of learning skills interventions on student learning: a meta-Analysis. *Review of Educational Research*, *66*, 99–136. http://dx.doi.org/10.3102/00346543066002099.

Hattie, J., & Jaeger, R. M. (1998). Assessment and classroom learning: a deductive approach. *Assessment in Education: Principles, Policy and Practice*, *5*, 111–122. http://dx.doi.org/10.1080/0969595980050107.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, *77*, 81–112. http://dx.doi.org/10.3102/003465430298487.

Havnes, A., Smith, K., Dysthe, O., & Ludvigsen, K. (2012). Formative assessment and feedback: making learning visible. *Studies in Educational Evaluation*, *38*, 21–27. http://dx.doi.org/10.1016/j.stueduc.2012.04.001.

Heywood, J. (2000). *Assessment in higher education*. London: Jessica Kingsley.

Higgins, R., Hartley, P., & Skelton, A. (2001). Getting the message across: the problem of communicating assessment feedback. *Teaching in Higher Education*, *6*, 269–274. http://dx.doi.org/10.1080/13562510120045230.

Hounsell, D. (2003). Student feedback, learning and development. In M. Slowey, & D. Watson (Eds.), *Higher education and the lifecourse* (pp. 67–78).Buckingham: SRHE and Open University Press.

Hounsell, D., McCune, V., Hounsell, J., & Litjens, J. (2008). The quality of guidance and feedback to students. *Higher Education Research & Development*, *27*, 55–67. http://dx.doi.org/10.1080/07294360701658765.

Huba, M. E., & Freed, J. (2000). *Learner-centered assessment on college campuses: shifting the focus from teaching to learning*. Boston, MA: Allyn and Bacon.

Jessop, T., & Maleckar, B. (2014). The influence of disciplinary assessment patterns on student learning: a comparative study. *Studies in Higher Education*. http://dx.doi.org/10.1080/03075079.2014.943170.

King, P. E., Schrodt, P., & Weisel, J. (2009). The instructional feedback orientation scale: conceptualizing and validating a new measure for assessing perceptions of instructional feedback. *Communication Education*, *58*, 235–261. http://dx.doi.org/10.1080/03634520802515705.

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: a historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, *119*, 254–284. http://dx.doi.org/10.1037/0033-2909.119.2.254.

Knight, P., & Yorke, M. (2003). *Assessment, learning and employability*. Maidenhead, UK: SRHE, Open University Press.

Lea, M. R., & Stierer, B. V. (2000). Student writing and staff feedback in higher education: an academic literacies approach. In M. Lea, & B. Stierer (Eds.), *Students writing in higher education: new contexts* (pp. 1–15).Buckingham: The Society for Research into Higher Education and Open University.

Li, J., & De Luca, R. (2014). Review of assessment feedback. *Studies in Higher Education*, *39*, 378–393. http://dx.doi.org/10.1080/03075079.2012.709494.

Lizzio, A., & Wilson, K. (2008). Feedback on assessment: students' perceptions of quality and effectiveness. *Assessment & Evaluation in Higher Education*, *33*, 263–275. http://dx.doi.org/10.1080/02602930701292548.

Menino, H., & Santos, L. (2004). Instrumentos de avaliação das aprendizagens em matemática. *o uso do relatório escrito, do teste em duas fases e do portefólio no 2 (ciclo do ensino básico). Actas do XV SIEM (Seminário de Investigação em Educação Matemática)*271–291.

Myers, C., & Myers, S. (2014). The use of learner-centered assessment practices in the United States: the influence of individual and institutional contexts. *Studies in Higher Education*. http://dx.doi.org/10.1080/03075079.2014.914164.

Nicol, D., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: a model and seven principles of good feedback practice. *Studies in Higher Education*, *31*, 199–218. http://dx.doi.org/10.1080/03075070600572090.

Nicol, D., Thomson, A., & Breslin, C. (2014). Rethinking feedback practices in higher education: a peer review perspective. *Assessment & Evaluation in Higher Education*, *39*, 102–122. http://dx.doi.org/10.1080/02602938.2013.795518.

O'Donovan, B., Price, M., & Rust, C. (2001). The student experience of criterion-referenced assessment. *Innovations in Education and Teaching International*, *38*, 74–85. http://dx.doi.org/10.1080/14703290130002873.

Orrell, J. (2006). Feedback on learning achievement: rhetoric and reality. *Teaching in Higher Education*, *11*, 441–456. http://dx.doi.org/10.1080/13562510600874235.

Orsmond, P., Maw, S., Park, J., Gomez, S., & Crook, A. (2013). Moving feedback forward: theory to practice. *Assessment & Evaluation in Higher Education*, *38*, 240–252 [0.1080/02602938.2011.625472].

Orsmond, P., Merry, S., & Reiling, K. (2005). Biology students' utilization of tutors' formative feedback: a qualitative interview study. *Assessment & Evaluation in Higher Education*, *30*, 369–386. http://dx.doi.org/10.1080/02602930500099177.

Pereira, D., Flores, M., & Niklasson, L. (2015). Assessment revisited: a review of research in assessment and evaluation in higher education. *Assessment & Evaluation in Higher Education*. http://dx.doi.org/10.1080/02602938.2015.1055233.

Perera, J., Lee, N., Win, K., Perera, J., & Wijesuriya, L. (2008). Formative feedback to students: the mismatch between faculty perceptions and student expectations. *Medical Teacher*, *30*, 395–399. http://dx.doi.org/10.1080/01421590801949966.

Poulos, A., & Mahony, M. J. (2008). Effectiveness of feedback: the students' perspective. *Assessment & Evaluation in Higher Education*, *33*, 143–154. http://dx.doi.org/10.1080/02602930601127869.

Price, M., Carroll, J., O'Donovan, B., & Rust, C. (2011). If I was going there I wouldn't start from here: a critical commentary on current assessment practice. *Assessment & Evaluation in Higher Education*, *36*, 479–492. http://dx.doi.org/10.1080/02602930903512883.

Price, M., Handley, K., Millar, J., & O'Donovan, B. (2010). Feedback: all that effort, but what is the effect? *Assessment & Evaluation in Higher Education*, *35*, 277–289. http://dx.doi.org/10.1080/02602930903541007.

Price, M., Handley, K., & O'Donovan, B. (2008). Feedback—all that effort but what is the effect? *Paper presented at the EARLI/Northumbria assessment conference*.

Quality Assurance Agency for Higher Education (2007). *Enhancing practice*. . http://www.enhancementthemes.ac.uk/docs/publications/guide-no-4?-managing-assessment-practices-and-procedures.pdf?sfvrsn=18.

Ramsden, P. (2003). *Learning to teach in higher education*. London: RoutledgeFalmer.

Robinson, S., Pope, D., & Holyoak, L. (2013). Can we meet their expectations? Experiences and perceptions of feedback in first year undergraduate students. *Assessment & Evaluation in Higher Education*, *38*, 260–272. http://dx.doi.org/10.1080/02602938.2011.629291.

Ruiz- Primo, M. A. (2011). Informal formative assessment: the role of instructional dialogues in assessing students' learning. *Studies in Educational Evaluation*, *37*, 15–24. http://dx.doi.org/10.1016/j.stueduc.2011.04.003.

Rust, C., O'Donovan, B., & Price, M. (2005). A social constructivist assessment process model: how the research literature shows us this could be best practice. *Assessment & Evaluation in Higher Education*, *30*, 231–240. http://dx.doi.org/10.1080/02602930500063819.

Sambell, K., & McDowell, L. (1998). The construction of the hidden curriculum: messages and meanings in the assessment of student learning. *Assessment & Evaluation in Higher Education*, *23*, 391–402. http://dx.doi.org/10.1080/0260293980230406.

Sambell, K., McDowell, L., & Brown, S. (1997). 'But is fair?': an exploratory study of student perceptions of the consequential validity of assessment. *Studies in Educational Evaluation*, *23*, 349–371. http://dx.doi.org/10.1016/S0191-491X(97)86215-3.

Santos, J. (2008). *História da Avaliação: do exame a avaliação diagnóstica*. Uberlândia: Universidade Federal de Uberlândia.

Scaife, J., & Wellington, J. (2010). Varying perspectives and practices in formative and diagnostic assessment: a case study. *Journal of Education for Teaching*, *36*, 137–151. http://dx.doi.org/10.1080/02607471003651656.

Segers, M., & Dochy, F. (2001). New assessment forms in problem-based learning: the value added of the students' perspective. *Studies in Higher Education*, *26*, 327–343. http://dx.doi.org/10.1080/03075070120076291.

Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research*, *78*, 153–189. http://dx.doi.org/10.3102/0034654307313795.

Slater, T. (1996). Portfolio Assessment strategies for grading first-year university physics students in USA. *Physics Education*, *31*, 329–333. http://dx.doi.org/10.1088/0031-9120/31/5/024.

Small, F., & Attreeb, K. (2015). Undergraduate student responses to feedback: expectations and experiences. *Studies in Higher Education*. http://dx.doi.org/10.1080/03075079.2015.1007944.

Struyven, K., Dochy, F., & Janssens, S. (2005). Students' perceptions about evaluation and assessment in higher education: a review. *Assessment & Evaluation in Higher Education*, *30*, 325–341. http://dx.doi.org/10.1080/02602930500099102.

Tunstall, P., & Gipps, C. (1996). Teacher feedback to young children in formative assessment. *British Educational Research Journal*, *22*, 389–404. http://dx.doi.org/10.1080/0141192960220402.

Weaver, M. R. (2006). Do students value feedback? Student perceptions of tutors' written responses. *Assessment & Evaluation in Higher Education*, *31*, 379–394. http://dx.doi.org/10.1080/02602930500353061.

Webber, K. (2012). The use of learner-Centered assessment in US colleges and universities. *Research in Higher Education*, *53*, 201–228. http://dx.doi.org/10.1007/s11162-011-9245-0.

Weurlander, M., Söderberg, M., Scheja, M., Hult, H., & Wernerson, A. (2012). Exploring formative assessment as a tool for learning: students' experiences of different methods of formative assessment. *Assessment & Evaluation in Higher Education*, *37*, 747–760. http://dx.doi.org/10.1080/02602938.2011.572153.

Wiliam, D. (2011). What is assessment for learning? *Studies in Educational Evaluation*, *37*, 3–14. http://dx.doi.org/10.1016/j.stueduc.2011.03.001.

Yorke, M. (2005). Increasing the chances of student success. In C. Rust (Ed.), *Improving student learning 12: diversity and inclusivity* (pp. 35–52).Oxford: Oxford Centre for Staff and Learning Development.

Zimmerman, B. (2000). Self-Efficacy: an essential motive to learn. *Contemporary Educational Psychology*, *25*, 82–91. http://dx.doi.org/10.1006/ceps.1999.1016.

Zimmerman, B. (2002). Becoming a self-Regulated learner: an overview. *Theory into Practice*, *41*, 64–70. http://dx.doi.org/10.1207/s15430421tip4102_2.