

The Effectiveness of Instructor Personalized and Formative Feedback Provided by Instructor in an Online Setting: Some Unresolved Issues

Dolors Planar and Soledad Moya
Open University of Catalunya, Spain

dplana@uoc.edu

Abstract: Formative feedback has great potential for teaching and learning in online undergraduate programmes. There is a large number of courses where the main source of feedback is provided by the instructor. This is particularly seen in subjects where assessments are designed based on specific activities which are the same for all students, and where the assessment is performed by the instructor, not by a peer. Additionally, in introductory or basically procedural courses, there is often a need for instructor feedback, as opposed to peer-feedback, as it demands high quality feedback both in the content and in the process in order not to mislead students. Therefore personalized feedback provided by instructor is an academic demand in the current educational models that have positioned the student at the center of the learning process. However in the present context of high student-staff ratio, it is not easy to extend the use of individual comments delivered by instructors among the academic community. This article focuses on the virtual higher education environment given its present and future potential as well as the amount of queries currently surrounding it. Literature on formative feedback in higher education has been reviewed for the period 2000 to 2014, in order to find answers as to which aspects are relevant to efficiently implement personalized feedback prepared by the teacher. Findings show that effective personalized feedback in an virtual environment requires a three-dimensional analysis: from the student perspective, from the instructor one and from the media perspective (written text, video recording or audio recording), in order to find shared aspects that contribute to the enhancement in the use of personalized feedback performed by faculty.

Keywords: formative feedback, effective feedback, online feedback, student-professor dialogue

1 Introduction

Placing the focus of attention on the student's learning process and not on the teaching process entails profound transformations in higher education. In order to successfully implement this new approach we need to reformulate the planning, the employed methodology as well as the way we evaluate teaching and learning processes (de Zarraga, Jaca, & Viles, 2012). What's more, changes need to be made to the student's and teacher's role. Students need to adopt an active attitude and professors need to guide, orient and counsel the activities carried out by their students. The faculty has to lead this process but inertia and lack of familiarity are elements that may slow down progress towards this new model.

The feedback that students receive within their coursework is one of the most powerful influences on their learning process (Hattie & Timperley, 2007) and it's central to the development of effective learning (Sadler, 2010). Although Orsmond, Maw, Park, Gomez, & Crook (2013) identify the characteristics of current approach to feedback, it's not easy to give effective feedback. It's necessary that students read the feedback provided and apply it. Therefore, the feedback must not only be drawn up and given in time for it to be useful but that it must also promote the student's self-regulation capacities (Nicol & Macfarlane-Dick, 2006) in order to ensure the student is engaged in learning and accomplishes the desired goal in higher education. Moreover students prefer personalized than general feedback (Cramp, 2011).

Faculty feedback or instructor feedback, a term coined by Wolsey (2008), has not awoken the same interest from researchers as has peer feedback. Some of the reasons for this may be the practicality of feedback among peers and the possibility of employing it to simulate what takes place in professional settings (van der Pol, van den Berg, Admiraal, & Simons, 2008). Having said this, it is not always possible to guarantee that the student has sufficient knowledge in order to take on the role demanded by this strategy.

In the light of the current exponential growth in online courses which is expected to continue (Allen, Seaman, & Garret, 2007). Feedback is a need and we therefore have to take an in depth look at the phenomenon of instructor feedback as a feasible strategy that will cover a broader range of subjects and types of continuous assessment activities. Adopting the instructor feedback strategy in the current context of high student-staff ratio constitutes a significant challenge which requires identifying those elements of instructors, students and ways of communication that further the optimum use of personalized feedback in online settings.

This theoretical article conducts a review of the literature on formative feedback in order to efficiently implement the personalized feedback in an online setting

2 Methodology

A great number of articles have been published about formative feedback in an educational context, which makes it very difficult to perform an exhaustive review of what has been written regarding this topic.

The first search on formative feedback literature started with the most cited article (Nicol & Macfarlane-Dick, 2006) provided by the online databases ISI Web of Knowledge (ISI) and SCOPUS for the period 2000-2014. Based on the terms "feedback", "formative feedback" and "feedforward" we looked for the article that had been most cited for the mentioned period and in both databases, and that one was the study by Nicol & Macfarlane-Dick (2006).

The reference list in the articles selected was then used to find new articles, continuing iteratively throughout the review process, a method sometimes referred to as snowballing (Jonsson, 2013). Furthermore, to make our revision more comprehensive, all articles citing Nicol and Macfarlane-Dick's work were also considered. Both theoretical and empirical research studies on formative feedback in higher education were included, and the search has been limited to include only printed and peer-reviewed material, such as articles in journals, edited books, research reports and doctoral dissertations.

The review is also limited to studies that have investigated formative feedback provided only by instructor feedback, not by peers, the students themselves, or computers. The main reason is that feedback from an instructor is a major source of feedback for the students (in some institutions the only source).

3 Effective feedback

3.1 Evolution of the effective feedback concept: from one-directional to two-directional

The feedback provided to students is one of the crucial elements of a learning-oriented evaluation system (Hounsell, 2003).

But what feedback is effective? One part of the scientific community refers to feedback as a relatively imprecise concept that may lead to confusion due to the different interpretations that professors and students may have concerning its objective. What's more, it is not easy to work out what type of feedback works. There are problems as regards the way teachers and students perceive the feedback facilitated concerning an activity. Carless (2006) found that professors believe that the feedback they provide is more detailed than what their students perceive they have received, and professors consider that the information they have facilitated is more useful than their students perceive it to be. What's more, its implementation comes up against obstacles on the part of faculty because they are pressed for time and because of the widespread belief that students are only interested in their marks despite all the evidence to the contrary (Orsmond, Merry, & Reiling, 2005; Carless, 2006). On the other hand students find it hard to apply the feedback because they don't understand it (Crook et al., 2012), they don't know exactly where they need to improve or they have received the comments too late for them to be useful to them.

We find ourselves at a time of transition, when the original concept of feedback is being revised. The original view of feedback that still persists among faculty and university institutions was one-directional. In the new framework, feedback is viewed as two-directional. The student has now become the center of the learning process and education needs to promote beneficial and fruitful learning throughout one's lifetime. This transformation demands that students and faculty integrate feedback as yet one more element in the learning

process and not as a simple supplement (Hounsell, McCune, Hounsell, & Litjens, 2008). Table 1 outlines the characteristics of the current approach to feedback.

Table 1: The New approach to feedback compared to the initial model. Adapted from Orsmond, Maw, Park, Gomez, & Crook (2013)

Current feedback model	Initial feedback model
Dialogue. It encourages dialogue between the provider of the feedback and the receiver	Monologue. The feedback facilitated by the professor is often one-directional
It involves class colleagues (<i>peer</i>)	It does not involve class colleagues (<i>peer</i>)
It explicitly promotes self-regulation and demands engagement on the part of the student	It does not explicitly promote self-regulation
Feedback on the process	Feedback on the product
It promotes a proactive attitude on the part of the student towards the feedback	It promotes a reactive attitude on the part of the student towards the feedback

Feedback needs to constitute a dialogue between the person who facilitates it and the one who receives it. It must explicitly promote self-regulation and a proactive attitude on the part of the student towards it; at the same time, it needs to focus on the learning process and involve class colleagues.

Sadler (1989) brought about a change in the way feedback was originally conceived. In his theoretical analysis feedback was considered effective if it met three conditions, the third of which entailed the student's engagement with the feedback, assigning them an active role in the learning process. Despite the leap that this approach involves with regard to the previous approach, its impact on learning has been limited because in general the facilitated feedback does not go beyond improving the activity carried out by the student and, as such, continues to be a transmissive feedback model where the professor provides the student with information on the divergence between the task the student has performed, and the set standard. Conceiving feedback as a tool for improvement in the short term is not viable because it doesn't place emphasis on facilitating learning strategies and tools to the student which, once they have left college and the professor's support has been removed, will prove useful to them to continue learning.

If what we want is to further learning capacities of students to learn "how to learn" the feedback must constitute a control mechanism designed by faculty, which stipulates the path students must take towards a process used by the students to facilitate their own learning (Boud & Molloy, 2013). This approach to feedback requires that students take on an active role, not only acting as simple receivers of information and that professor become learning facilitators.

With this approach, Hattie & Timperley (2007) put forward a feedback model that differentiates between four levels of feedback: the activity, the processes, self-regulation and the students themselves (*self*). In order to be effective, feedback must be focused on the task and on the learning and evaluation processes, whilst at the same time facilitating the students' self-regulation processes. The formative feedback model developed by Nicol & Macfarlane-Dick (2006) is along these lines and bases learning self-regulation on seven feedback best-practices principles. Its aim is to further the student's capacity to autonomously regulate learning processes through formative assessment and feedback.

Furthermore, the assessment system needs to be structured around a series of learning activities which enable students to master the contents and to form an adequate representation of the objectives and evaluation criteria whilst at the same time familiarizing themselves with the regulation and control tasks. Some authors highlight dialogue between students and professors, or among students, as an essential element in the learning self-regulation process (Handley, Price, & Millar, 2008; Nicol, 2009, 2010; Carless, Salter, Yang, & Lam, 2011). Quality education must be interactive and discursive, and feedback forms part of this process. With this vision, Carless et al. (2011) reformulate the concept of feedback by adding dialogue to self-regulation and put forward the term sustainable feedback in order to design it. It is evident that if the students are not engaged by the feedback facilitated by faculty it will be difficult for them to incorporate improvements into their learning process.

Higher education professors should focus their efforts on developing their students' capacity for self-regulation, and feedback should be at the service of this purpose (Nicol, 2009). The important role and

responsibility this assigns to students in the learning process makes one reconsider whether students and faculty have the information, the knowledge and the necessary skills in order to fully and effectively participate in this process. It is important to train professors and students on how to give and receive feedback (Carless, 2007; Nicol & Macfarlane-Dick, 2006) and to make widespread the concept that feedback is a means for increasing the student's capacity for making adjustments and acting on them (Boud & Molloy, 2013).

3.2 The characteristics and media for effective feedback

Despite the available research on successful strategies for designing and implementing feedback we need to be cautious. It is difficult to generalize when it comes to setting down a feedback strategy due to the several factors involved in the cause and effect relationships.

In Evans' (2013) review of feedback, he points out that there is no consensus as to the characteristics that good feedback should have. There are contradictory opinions concerning the ideal volume of feedback (Lipnevich & Smith, 2009); concerning the effectiveness of presenting drafts of the activity before the definitive feedback (Fisher, Cavanagh, & Bowles, 2011); concerning the right moment for giving feedback (immediate or after a period of time) (Fluckiger, Vigil, Tixier, Pasco, & Danielson, 2010). Having said this, there seems to be a certain amount of agreement concerning students' preferences whereby they prefer individual feedback to group feedback, despite existing studies that point to the benefits of group discussions. What's more, there are few guidelines for applying the principles of feedback effectively in different fields. Perhaps, as Thurlings, Vermeulen, Bastiaens, & Stijnen (2013) point out, if we focus research efforts on effective feedback patterns within different learning theories this would enable us to make headway in our understanding of effective feedback. According to the authors mentioned above, each learning theory has a particular feedback process and researchers should be aware of the differences between each one of these and weigh up the appropriateness of a feedback strategy in the light of the learning theory it is based on.

Nevertheless, we do find some indicators in the literature on pedagogical best practices. Gibbs & Simpson (2004) present a series of characteristics that faculty must take into account in order to make feedback useful for students. According to them, feedback needs to be regular, quite specific, centered on contents and not on the student's personal characteristics and facilitated on time in order to be applied in further learning, a balance needs to be found between expediency and quality. Before the process takes place, there is no way to ensure that the students will read or take note of the feedback despite the fact that the professor has followed the indications in the literature.

On the other hand, the spread of information and communication technologies (ICT) has enabled universities to set up online learning platforms and make use of several communication technology tools (e.g. written text, audio recording or video recording) thus enabling them to reach a greater number of students within a shorter period of time. This phenomenon has been the subject of several studies on the virtues of different media for communicating feedback to students. According to Merry & Orsmond (2008) audio provides more complex and detailed feedback than text, whilst at the same time highlighting the main points of the discourse to students through tone and intonation.

Other authors consider that video recording has great communication potential via the image. It has been seen to generally go down well with students and could provide a more enriching format than audio (Cann, 2007). One other advantage that it has in common with audio is that students can view the recording as many times as they like. Crook et al. (2012) made use of video to facilitate general feedback before sending the activities and general feed-forward once these had been carried out. The results show that videos enabled staff to facilitate feedback expediently and in time for students to use it for the next activity. What's more, it also made staff reflect upon and make positive changes to the way they phrase their comments to students. Using video also improved the students' engagement to the feedback. The main advantage that students mentioned was the clarity of information compared with other media. They also mentioned certain drawbacks concerning technological aspects and the fact that they did not receive personalized feedback.

Hence, both the characteristics of the feedback and the media we are going to use to facilitate it need to be adapted to the technological and educational context where the teaching activity is being carried out, always taking into account one fundamental premise: that the students are able to improve their learning process and

in order to do this they need to become efficacious regulators of their learning, and feedback, conceived as a process of dialogue, is the mechanism for achieving this.

3.3 Effective feedback in an online environment

Online teaching is becoming increasingly widespread in higher education. Gikandi, Morrow, & Davis (2011) define online instructor assessment as the application of formative evaluation in a virtual learning environment where students and staff do not coincide in time and/or space, and where a substantial part of learning activities are carried out via web-based information and communication technologies (ICT).

Online teaching and learning does not differ from that provided in other regulated education contexts. As such, it appraises students' needs, it provides and administers contents, it prepares learning activities and it evaluates the student's learning (Anderson, 2008). Having said this, the specific peculiarities of the learning environment call for a rethinking of the role traditionally assigned to the teacher with a view to creating efficacious and significant learning experiences (Coppola, Hilitz, & Rotter, 2002). In recent years both international organizations as well as the scientific community (e.g. Coppola, Hilitz, & Rotter, 2002; Guasch, Alvarez, & Espasa, 2010), have shown a certain interest in organizing and rigorously categorizing the roles and competencies of online instructors in order to precisely define their profile (Muñoz Carril, Gonzalez Sanmamed, & Henández Sellés, 2013). There is a certain amount of consensus in the literature concerning the role that online instructors should have and Guasch et al. (2010) have grouped it into three categories: 1) planning and design role, 2) social role and 3) instructional role (educational), as well as two overlapping areas: technology and administration. In contrast there is a lack of consensus when it comes to prioritizing the functions and assigning a list of competencies to each of the online professor roles (Alvarez, Guasch, & Espasa, 2009). The cited authors believe that the essential competencies for teaching in an online setting only make sense within a specific technological and educational setting (situated learning) and consequently, any attempt to define them or outline them must take into account this particular circumstance.

Developing effective learning in an online environment where interaction and communication are asynchronous is not at all straightforward. In this media it is crucial to develop and analyze tools that enable a greater amount of dialogue among the participants in the learning process. In this respect Tallent-Runnels et al. (2006) points out the wide range of existing formats for online interactions, many of which have been used to supplement *face-to-face courses*. Beyond its origins, we need to find out which format (written text, audio recording, video recording, ...) facilitates more communication and a more effective learning experience, for different types of students whilst also taking into account the specific pedagogical characteristics of staff members. The greater the amount and quality of interaction the more chances we have of increasing the efficacy of instructor feedback by reinforcing dialogue, one of the key features of the current feedback model displayed in Table 1. Feedback in an online setting needs to go beyond the concrete characteristics of the feedback and stimulate dialogue between the student and the professor and/or among students even further (Wolsey, 2008).

Feedback used effectively should enable each student individually to narrow the gap between the accomplished objectives and those desired or set by the professor (Stephenson & Sangrà, 2003). Online course design is crucial to achieving this benefit and requires detailed planning in order to provide opportunities for effective formative assessment (Wolsey, 2008). Learning in an online environment can constitute a positive springboard to the new role that professors need to take on in an education model where the student is at the center of the learning process.

4 Discussion

From a review of the literature we can safely state that providing effective feedback to students which they can then use is key to supporting and improving their experience in higher education.

An important number of researchers such as Hattie & Gan (2011), consider that research on feedback needs to focus mainly on the person receiving it and less on the person facilitating it. In other words, it should focus more on finding out what students need, how they understand it and process it and not so much on how professors can increase the amount and quality of the feedback they facilitate. We all agree that this is an essential perspective despite the fact that it has been one of the most widely studied aspects to date. Although, as Nicol (2009) points out, professors need to take on responsibility for developing self-regulation in

their students via feedback, we also need to address the issue from the perspective of faculty, otherwise we would only be focusing on one of the parts of the education process and consequently limiting the opportunities for feedback in the learning process.

We cannot overlook the current large numbers of students per classroom in higher education institutions, and this means that research must also take into account how we can optimize feedback with available teacher resources. This issue takes on more relevance if we take into account the fact that students prefer personalized feedback to general feedback provided to the whole class (e.g. Laryea, 2013). This demand on the part of students may be beneficial to their learning but it is not very realistic (Laryea, 2013), because of the heavy work load it entails for faculty. One solution for personalized feedback could be to explore the strategy of peer feedback. But it is not clear to what extent it cuts down the time employed by staff members. Furthermore, it is more suited to certain activities than it is to others (Liu & Carless, 2006). In undergraduate programmes there are two circumstances which bring on the need for feedback on the part of professors: 1) a significant number of subjects that are designed based on specific exams that are the same for all students, which require assessment carried out by examiners who are not linked to the teaching activity, 2) introductory subjects or subjects with considerable procedural weight where the person providing commentary has a high level of proficiency in the subject in order not to mislead students. This approach is akin to the characteristics of the current view of feedback held by Orsmond et al. (2013) where the key issue is to conceive feedback as a professor-student dialogue, as an opportunity for the student to carefully consider and clarify the received comments in order to improve their learning (Nicol & Macfarlane-Dick, 2006).

We have seen that efficacious principles and characteristics have been established in order to design feedback yet at the same time these have proven complex and difficult to implement. Feedback may improve results but not in all contexts and not for all students (Evans, 2013). One line of further research into the effectiveness of feedback is to frame empirical research under the umbrella of the learning theory it gives support to (an approach put forward by Thurlings et al. ; 2013), in order to gather useful results in each educational setting.

Current research into online education has not resolved the issue of how to provide efficacy personalized instructor feedback, given the large number of students per classroom, and little time on the part of professors. Analyzing effectiveness involves determining the best balance between student demand and real capacity, both of faculty as well as of higher education institutions, and the crucial role that the medias may play stimulating dialogue between teachers and students.

One of the most widely accepted feedback models today is that of Nicol & Macfarlane-Dick (2006) based on metacognitivism. The seven of best-practice principles it expounds are also critical elements of an online learning evaluation process (Gikandi et al., 2011). Hence, a good starting point for analyzing the optimum use of personalized feedback facilitated by faculty in an asynchronous online environment would be to do so using this model and this learning theory. There are a number of issues that need to be addressed which have not been studied empirically by the scientific community. We need to find out what the relevant elements are for faculty, such as their attitude towards feedback, their technology skills, one of the two overlapping areas demanded of online instructors (Guasch et al., 2010), or their communicative competencies ,essential for developing the social role of an online professor.

Furthermore, we need to study instructors' attitudes towards continuous assessment and feedback based on the type of message, using action research. This would enable us to find out whether faculties share the vision of an education system that places students at the center of the learning process. If this is not the case then we need to find out which elements could promote a change towards the new educational model.

There are also important aspects that need to be researched from the point of view of students and their results. We have already mentioned that according to Sadler (1989) the only way to know the results of feedback on learning is if students facilitate a type of response which completes the feedback circuit. This approach entails finding answers to questions such as, what aspects of personalized feedback facilitated by instructors promote professor-student dialogue. Or whether greater satisfaction with the received feedback leads to more effective learning. We would imagine that the student will be more engaged with the feedback they have received if they are satisfied with the comments made by the instructor, if these have been transmitted in an appropriate tone and were received on time, if they comprised quality information on contents and processes or if this has led to an increase in the exchange of messages with the instructor. These

questions should be combined with looking at the interaction and the effect of the media chosen to facilitate the feedback, an approach initiated by Fernandez, Simo, Sallan, & Enache (2013). The usual written feedback in online environments does not enable faculty to provide more thorough and detailed feedback (Merry & Orsmond, 2008) that would help to overcome obstacles. Communication could become more significant if we explore the potential of exchanges in audio or video recording formats.

5 Conclusions

The scientific literature has shown that structuring a subject based on continuous assessment and providing feedback for each activity is the optimal way to educate people who are engaged with their learning and have the competencies to continue learning throughout their life. Having said this, given the large number of students per classroom it constitutes a challenge to extend the use of personalized feedback provided by instructor.

There are good proposals to do effective feedback practices, such as those put forward by Gibbs & Simpson (2004), by Nicol & Macfarlane-Dick (2006) or by Carless et al. (2011). However, if the objective is that those proposals are helpful both to professors (to help them provide effective feedback) and to students (to improve their learning), it is necessary to contextualize them in the light of a learning theory that balances demands from instructor and students with available resources.

This holistic approach would provide the opportunity to implement efficient feedback in the light of determined context and paradigm and would help to expand the use of personalized feedback in all faculties. Therefore, the analysis of personalized feedback provided by the teacher should be studied in the light of the three dimensions mentioned: students, teacher and media, in order to find shared aspects that jointly promote implantation.

References

- Allen, I., Seaman, J., & Garret, R. (2007) *Blending In: The Extent and Promise of Blended Education in the United State, USA*: Sloan Consortium (Sloan-C).
- Alvarez, I., Guasch, T., & Espasa, A. (2009) 'University teacher roles and competencies in online learning environments: a theoretical analysis of teaching and learning practices', *European Journal of Teacher Education*, vol. 32, no. 3, pp 321–336.
- Anderson, T. (2008) *Theory and Practice of Online Learning*, 2nd edition, Edmonton: Athabasca University.
- Boud, D., & Molloy, E. (2013) 'Rethinking models of feedback for learning: the challenge of design', *Assessment & Evaluation in Higher Education*, vol. 38, no. 6, pp 698–712. <http://doi.org/10.1080/02602938.2012.691462>
- Cann, A. J. (2007) 'Podcasting is Dead. Long Live Video!', *Bioscience Education*, vol. 10.
- Carless, D. (2006) 'Differing perceptions in the feedback process', *Studies in Higher Education*, vol 31, no. 2, pp 219–233. <http://doi.org/10.1080/03075070600572132>
- Carless, D. (2007) 'Learning-oriented assessment: conceptual bases and practical implications'. *Innovations in Education and Teaching International*, vol. 44, no. 1, pp 57–66. <http://doi.org/10.1080/14703290601081332>
- Carless, D., Salter, D., Yang, M., & Lam, J. (2011) 'Developing sustainable feedback practices', *Studies in Higher Education*, vol 36, no. 4, pp 395–407. <http://doi.org/10.1080/03075071003642449>
- Coppola, N. W., Hilitz, S. R., & Rotter, N. G. (2002) 'Becoming a Virtual Professor: Pedagogical Roles and Asynchronous Learning Networks', *Journal of Management Information Systems*, vol 18, no. 4, pp 169–189.
- Cramp, A. (2011) 'Developing first-year engagement with written feedback' *Active Learning in Higher Education*, vol 12, pp 113–124.
- Crook, A., Mauchline, A., Maw, S., Lawson, C., Drinkwater, R., Lundqvist, K., ... Park, J. (2012) 'The use of video technology for providing feedback to students: Can it enhance the feedback experience for staff and students?', *Computers & Education*, vol 58, no. 1, pp 386–396.
- de Zarraga, M., Jaca, C., & Viles, E. (2012) *Trabajo en equipo en los grados de Ingeniería: factores de efectividad y su aplicación*, In 6th International Conference on Industrial Engineering and Industrial. Management, Vigo: XVI Congreso de Ingeniería de Organización.
- Evans, C. (2013) 'Making Sense of Assessment Feedback in Higher Education', *Review of Educational Research*, vol 83, no. 1, pp 70–120. <http://doi.org/10.3102/0034654312474350>
- Fernandez, V., Simo, P., Sallan, J. M., & Enache, M. (2013) 'Evolution of online discussion forum richness according to channel expansion theory: A longitudinal panel data analysis', *Computers & Education*, vol 62, pp 32–40. <http://doi.org/10.1016/j.compedu.2012.10.020>
- Fisher, R., Cavanagh, J., & Bowles, A. (2011) 'Assisting transition to university: Using assessment as a formative learning tool' *Assessment & Evaluation in Higher Education*, vol 36, pp 225–237.
- Fluckiger, J., Vigil, Y., Tixier, Y., Pasco, R., & Danielson, K. (2010) 'Formative feedback: Involving students as partners in assessment to enhance learning' *College Teaching*, vol 58, pp 136–140.

- Gibbs, G., & Simpson, C. (2004) 'Conditions under which Assessment support Students' Learning', *Learning and Teaching in Higher Education*, vol 1, pp 3–31.
- Gikandi, J. W., Morrow, D., & Davis, N. E. (2011) 'Online formative assessment in higher education: A review of the literature', *Computers & Education*, vol 57, no. 4, pp 2333–2351. <http://doi.org/10.1016/j.compedu.2011.06.004>
- Guasch, T., Alvarez, I., & Espasa, A. (2010) 'University teacher competencies in a virtual teaching/learning environment: Analysis of a teacher training experience', *Teaching and Teacher Education*, vol 26, no. 2, pp 199–206. <http://doi.org/10.1016/j.tate.2009.02.018>
- Handley, K., Price, M., & Millar, J. (2008) *Engaging Students with Assessment Feedback: Final Report for FDTL5 Project 144/03*, Oxford: Oxford Brookes University.
- Hattie, J., & Gan, M. (2011) 'Instruction based on feedback', In R. E. Mayer & P. A. Alexander (Eds.) *Handbook of Research on Learning and Instruction*, New York: Routledge.
- Hattie, J., & Timperley, H. (2007) 'The Power of Feedback', *Review of Educational Research*, vol 77, no. 1, pp 81–112. <http://doi.org/10.3102/003465430298487>
- Hounsell, D. (2003) 'Student feedback, Learning and Development'. In A. M. Slowey & D. Watson (Eds.) *Higher Education and the Lifecourse*, Buckingham: SRHE & Open University Press.
- Hounsell, D., McCune, V., Hounsell, J., & Litjens, J. (2008) 'The quality of guidance and feedback to students', *Higher Education Research & Development*, vol 27, no. 1, pp 55–67. <http://doi.org/10.1080/07294360701658765>
- Jonsson, A. (2013) 'Facilitating productive use of feedback in higher education', *Active Learning in Higher Education*, vol 14, no. 1, pp 63–76. <http://doi.org/10.1177/1469787412467125>
- Laryea, S. (2013) 'Feedback provision and use in teaching and learning: a case study'. *Education + Training*, vol. 55, no. 7, pp 665–680. <http://doi.org/10.1108/ET-06-2012-0071>
- Laurillard, D. (1993) *Rethinking University Teaching: A Framework for the Effective Use of Educational Technology*, London: Routledge.
- Lipnevich, A. A., & Smith, J. K. (2009) 'I really need feedback to learn: Students' perspectives on the effectiveness of the differential feedback messages' *Educational Assessment, Evaluation and Accountability*, vol 21, pp 347–367.
- Liu, N.-F., & Carless, D. (2006) 'Peer feedback: the learning element of peer assessment', *Teaching in Higher Education*, vol 11, no. 3, pp 279–290. <http://doi.org/10.1080/13562510600680582>
- Merry, S., & Orsmond, P. (2008) 'Students' attitudes to and usage of academic feedback provided via audio files', *Bioscience Education*, vol 11.
- Muñoz Carril, P. C., Gonzalez Sanmamed, M., & Henández Sellés, N. (2013) 'Pedagogical roles and competencies of university teachers practicing in the e-learning environment', *The International Review of Research in Open and Distance Learning*, vol 14, no. 3, pp 462–487.
- Nicol, D. (2009) 'Assessment for learner self-regulation: enhancing achievement in the first year using learning technologies', *Assessment & Evaluation in Higher Education*, vol 34, no. 3, pp 335–352. <http://doi.org/10.1080/02602930802255139>
- Nicol, D. (2010) 'From monologue to dialogue: improving written feedback processes in mass higher education', *Assessment & Evaluation in Higher Education*, vol 35, no. 5, pp 501–517. <http://doi.org/10.1080/02602931003786559>
- 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*, vol 31, no. 2, pp 199–218. <http://doi.org/10.1080/03075070600572090>
- Orsmond, P., Maw, S. J., Park, J. R., Gomez, S., & Crook, A. (2013) 'Moving feedback forward: theory to practices', *Assessment & Evaluation in Higher Education*, vol 38, no. 2, pp 240–252. <http://doi.org/10.1080/02602938.2011.625472>
- Orsmond, P., Merry, S., & Reiling, K. (2005) 'Biology students' utilisation of tutors' formative feedback: A qualitative interview study', *Assessment & Evaluation in Higher Education*, Vol 30, pp 369–386. <http://doi.org/10.1080/02602938.2012.697868>
- Sadler, D. R. (1989) 'Formative assessment and the design of instructional systems', *Instructional Science*, vol 18, no. 2, pp 119–144. <http://doi.org/10.1007/BF00117714>
- Sadler, D. R. (2010) 'Beyond feedback: developing student capability in complex appraisal', *Assessment & Evaluation in Higher Education*, vol 35, no. 5, pp 535–550. <http://doi.org/10.1080/02602930903541015>
- Stephenson, J., & Sangrà, A. (2003) *Modelos pedagógicos y e-learning: Fundamentos del diseño técnico-pedagógico en e-learning*, Barcelona: Universitat Oberta de Catalunya,
- Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., & Liu, X. (2006) 'Teaching Courses Online: A Review of the Research', *Review of Educational Research*, vol 76, no. 1, pp 93–135.
- Thurlings, M., Vermeulen, M., Bastiaens, T., & Stijnen, S. (2013) 'Understanding feedback: A learning theory perspective', *Educational Research Review*, vol 9, pp 1–15. <http://doi.org/10.1016/j.edurev.2012.11.004>
- van der Pol, J., van den Berg, B. A. M., Admiraal, W. F., & Simons, P. R. J. (2008) 'The nature, reception, and use of online peer feedback in higher education', *Computers & Education*, vol 51, no 4, pp 1804–1817.
- Wolsey, T. (2008) 'Efficacy of Instructor Feedback on Written Work in an Online Program', *International Journal on E-Learning*, vol 7, no. 2, pp 311–329.