Advisor's feedback as assessment practices in Doctoral Programs: a scoping review of empirical research

I feedback dei supervisori come pratiche di valutazione nei dottorati: una scoping review delle ricerche empiriche

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Abstract

A theoretical framework based on the *balanced assessment system* proposes a definition of formative feedback within an interactionist context and supports the autonomy and active learning of the students involved. The scoping review aims at mapping characteristics of feedback provided by tutors with doctoral students, defining the level, degree, and method of delivery and the ability to promote active learning processes. For the identification and synthesis of the research 11.829 contributions were extracted from a query of different aggregators and databases (ProQuest, Scopus, Web of Science, EBSCO). From these, 24 contributions were included in the analysis by a text mining process following a selection of inclusion/exclusion and critical appraisal carried out by two researchers (K Cohen=0.70). From the analysis it is possible to highlight the prevalence of reinforcement feedback distributed during the development of the doctoral process. A need of training also emerges about assessment practices, such as feedback, to support self-assessment and autonomy of the student and to adopt computerized feedback models.

Keywords: assessment practices; doctoral programs; formative feedback; active learning.

Sintesi

Alla luce del quadro teorico basato sul sistema di valutazione bilanciata, è fornita una definizione delle caratteristiche del feedback formativo all'interno di un contesto interazionista e di sostegno all'autonomia e all'apprendimento attivo dei dottorandi coinvolti. La *scoping review* ha lo scopo di mappare le caratteristiche dei feedback forniti dai tutor ai dottorandi di ricerca, definendone il livello, il grado e le modalità di erogazione e la capacità di attivare processi di apprendimento attivo. Per l'identificazione e la sintesi della ricerca, 11.829 contributi sono stati estratti dalla query di diversi aggregatori e database (ProQuest, Scopus, Web of Science, EBSCO). 24 contributi sono stati inclusi nell'analisi per mezzo di un processo di *text mining* e a seguito di una selezione di criteri di inclusione/esclusione e valutazione critica svolta da due ricercatori (K Cohen=0.70). Dall'analisi, si evince la prevalenza di feedback di rinforzo durante lo sviluppo del processo di dottorato. Emerge l'esigenza di una formazione all'uso del feedback, per favorire un supporto ai processi di autovalutazione e all'uso di sistemi informatici.

Parole chiave: pratiche valutative; dottorato di ricerca; feedback formativo; apprendimento attivo.

1. Introduction

In recent years literature has emphasized the importance of feedback as a tool capable of activating teaching methods that centralize the student's role in their learning process (Boud & Lee, 2009; Nicol, 2010; Panadero, Andrade, & Brookhart, 2018). However, regarding the role attributed to Higher Education, the research did not attribute any importance to the research doctorate context where feedback is used, both in a formal and informal manner, to assess what the students are doing and thus improve learning about the role of the researcher. The research doctorate is taking on an increasingly important role within the social context and, defined from a regulatory point of view, at European[1] and international levels, such as a training course which aims to lead to an advanced research qualification both in an academic and professional context (OECD, 2015). The skills that are acquired during the course would represent what is required by a company for the training of professionals who are able to meet the standards imposed by the globalized context with adequate skills on an international scale (Padrò, Erwee, Harmes, Harmes, & Danaher, 2018), but who also contribute above all to the development of scientific progress, determined largely by the quality of doctoral research programs, which achieves implementation of assessment practices capable of supporting the development of disciplinary and transversal skills within the doctoral students themselves. Among these practices, the subject of this contribution will be the investigation of the role that feedback can take as a form of assessment when adopted by tutors within the doctoral course through a qualitative, systematic review of English-speaking literature analyzed in light of a model that combines the assessment *of* learning with the assessment *for* learning and *as* learning.

The interaction between the student and the tutor through the feedback will therefore be the subject of this contribution, with particular attention to the role attributed to it by the two parties and to the tutor's importance in constructing a suitable context for the transfer of observations made. One of the objectives of this contribution will therefore be to rethink and redefine the types of feedback and the ways in which they can be activated, as to be real support for the doctoral student's learning, through the results of a scoping review aimed at mapping English-speaking contributions that have, as their subject, feedback as an assessment practice adopted by the tutor to support the student's learning.

2. Framework

The importance of research doctorates emerges from the literature through numerous studies conducted on various fields, such as learning experiences, supervisor practices, the impact of internationalization (Padrò et al., 2018), and doctoral students' (John & Denicolo, 2013; Leonard & Becker, 2009), as well as professional doctorates', learning (Hawkes & Yerrabati, 2018). A growing, yet not fully explored trend is that which relates to the debate on assessment by doctoral tutors, which led to the choice to perform a systematic review of assessment practices within the doctorate with particular attention to the use of the feedback from tutors as an assessment practice.

The relationship between feedback (as a model of interaction) and active learning within the context of the research doctorate is a practice which is a part of the process of promoting autonomy in learning and evaluating the subject in formal training contexts (see in the

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[1] See also Bergen Communiqué (2005) and London Communiqué (2007).

Italian context: Calonghi, 1976; Gattullo, 1986; Visalberghi, 1955), with aspects related to the dynamics of power and the democratic issues pertaining to education (Giovannini, 2016; Reynolds & Trehan, 2000).

Making this subject, as well as all the others in the docimological field, the object of a survey requires a particular research perspective since studies and research relating to assessment systems at national and international levels have progressively highlighted how assessment practices, conceived as the interweaving of multiple dimensions of the subject (such as behaviors, cognitive-affective structures and their interactions with contexts; Saunders, 2011) in the context of interactions between student and teacher, are also influenced by choices and assessment practices enacted by other subjects in different organizational levels.

For this reason, the theoretical framework within which the research is developed refers to the *balanced assessment system* (National Research Council, 2001; Stiggins, 2008) and the specific assessment practices at the level of student/teacher interaction were defined using a specific conceptual framework that aims to promote the assessment autonomy and, more generally, the learning of the subjects involved, preventing dysfunctional forms in the power relations that could take over the educational interaction. The model is considered to be a connection point between different lines of research to identify assessment devices able to allow the student an increasingly central role in the process of teaching/learning characterized by a progressive enlargement of the sphere of autonomy and capability (Alessandrini, 2014a; 2014b; Sen, 1993). In this direction in the literature there is an enlargement of the functions of the assessment that, from a summative focus on the product, has also increasingly taken on the contours of assessment with a diagnostic/guidance, regulatory and "forming" function open to the process; to an extension of the assessment time (from the final and ex-post to the initial and *in itinere*); to an increase in individual actors, not only the teacher but also the student and the peers, and institutional, hetero-assessment and self-assessment; to an extension of the object of assessment, which in addition to considering the results of learning, also refers to the metacognitive and affective-relational dimension processes; to an expansion of contexts, no longer just formal ones, but also non-formal and informal contexts.

In summary, the following assumptions of the model are: assessment (i) motivates the learning of the subjects; (ii) acts as a support (scaffolding) for learning; (iii) creates connections between learning; (iv) favors reflection and self-regulation by the subjects; (v) collects and reports information; (vi) favors exchange and discussion between the different actors involved in the different roles in the assessment; and (vii) leads to a choice by those who are assessed (Marcuccio & Silva, 2019a; 2019b).

3. What makes *good* feedback *good*?: a definition

The literature on the use of feedback appears to be, as we have already mentioned, extensive if we consider the English-speaking context. In Italy, however, the assessment practices within the university context continue to refer to more traditional models and to functions of a summative or certification nature (Grion, 2016; Grion, Serbati, Tino, & Nicol, 2017; Pastore, 2012). In this section we will therefore try to provide a definition of feedback that answers the question, "What makes good feedback good?", as from the title of a recent contribution by O'Donovan, den Outer, Price, and Lloyd (2019), to identify the characteristics of formative feedback for the student, that precedes examiners' feedback at

the end of the process (Holbrook, Bourke, Fairbairn, & Lovat, 2014). Starting from the concept of feedback as an element of transition or interaction, according to Dewey's (1938) conception, we consider it as an experience given by two conditions: an external one (object), which is placed under the control of who expresses the feedback (in this particular case), and an internal one (subject), which the teacher must take into account and which is difficult both to know and to control. Together in their interactions they constitute the *situation*. If these conditions are not in agreement, passage from the teacher to the doctoral student cannot take place. When we talk about feedback, therefore, we need to refer to a *complex* communication framework, which includes not only the object of communication and the two subjects, but also, as the receiving subject, the doctoral student who receives the feedback, interprets it, and then reflects and adjusts him or herself to it within a given context. This is an adaptive conception of feedback, which requires the adaptation of feedback according to the degree of interpretation of the student, as will be discussed later.

Compared to the more *traditional* definition of the concept by Ramaprasad (1983), but also of Sadler (1989), the feedback does not represent only the information in the gap between the current level within the reference level of a system parameter that is used to modify this gap in some way, but also assumes the characteristics of a training tool when it allows the student to understand how to improve their performance, thus transforming the assessment practice into a strategy to reinforce and improve learning (Grion et al., 2017; Lipnevich & Smith, 2009). Therefore, feedback does not come about in a single moment, but rather presents itself as a process that develops over time and ends with the mental internalization of the student's learning and the demonstration of them being able to modify their own behavior (Boud & Soler, 2015; Boud & Molloy, 2013). Therefore this process is born and develops first of all as an interior generative, during which the subject receives external stimuli of different nature and re-elaborates them in the light of previous knowledge, thus redefining new *internal* contents; given this *mental* change, it turns to the outside to materialize in a behavioral change (Nicol, 2018).

In summary, the perspective of feedback moves towards a more active role on the part of the one who receives the feedback, thus allowing him or herself to become more active towards their own autonomy and consolidation of key competencies, which are useful in a lifelong learning perspective.

The second aspect to unravelling the *enigma*, as defined by O'Donovan and colleagues (2019), is represented by the dissonance between the actual practice, the perspective of the advisors and that of the students. It is therefore necessary to define some points that can be shared, such as: (i) the already anticipated transition from the concept of feedback as a product to that of feedback as a process (Dawson et al., 2019; Nicol, 2010; Sadler, 2010); (ii) the feedback must be considered situated, culturally involved/shared, and socially mediated as a process (Wegner & Nuckles, 2015); (iii) it must be taken in dialogic form and in procedural terms (Carless, Salter, Yang, & Lam, 2011; Nicol, 2010; Rust O'Donovan, & Price, 2005), assuming it is "an exchange in which interpretations are shared, meanings negotiated and expectations clarified" (Carless et al., 2011, p. 397); and d) the sharing of the role of assessment and feedback (Price, Rust, O'Donovan, & Handley, 2012) can only take place when students who see knowledge as relative and mutable are able to be satisfied when they receive feedback.

It is therefore necessary to consider three substantial aspects of the feedback: (i) the interaction, intended for us as a transition; (ii) its role within active teaching; and (iii) the degree of sharing between the two parties.

So, what are the characteristics of *good* feedback? The answer corresponds to defining it as a formative one (Heitink, Van der Kleij, Veldkamp, Schildkamp, & Kippers, 2016), or useful for learning, when: (i) it is timely, continuous, accurate and specific; (ii) it contains information about the quality of the results obtained in a task; (iii) it offers guidance that leads to strategies and procedures that lead to improvements; (iv) it argues why and how to learn to improve; (v) it uses a clear and descriptive language that is also clear to the recipient; (vi) it is unrelated or prior to a vote to solicit attention; and (vii) it favors reflection (Gentile, 2018).

The feedback can therefore assume three levels, depending on the elements considered (Chappuis, 2004; Hattie, 2012; Hattie & Brown, 2004): (i) correction and reinforcement (Mory, 2004); (ii) of process; and (iii) self-assessment.

Within these three levels it is extremely important to work on the communication of the feedback (Hattie, 2012). It is necessary to choose at which level to communicate it, taking into account who receives it and their ability to reflect and rework on learning (Driscoll, 2013; Hattie, 2012), and then proceed sequentially, up to the third level, finally to self-regulate their own learning (OECD, 2015). The teacher helps to rethink the disciplinary knowledge on a factual and conceptual level (Hattie, 2012) and to examine the study setting and motivation (Winne, 2004). Particular attention is therefore placed on the perception of the student, but also on the impact and the credibility that the feedback assumes for them (Poulos & Mahony, 2008), giving importance to the meaning of the feedback, its delivery, the criteria and its temporality. These characteristics are also included as an assessment practice, according to what has already been defined by Marcuccio and Silva (2019a; 2019b)

Finally, the definition of feedback we take as a reference for our research is the following. Feedback is a complex information given as a response to information provided by another subject, who expects a response whose content consists of: (i) a reference parameter; (ii) a gap between what expressed and the reference criterion; (iii) a suggestion to fill up this gap; (iv) logical-procedural consistency between the previous elements. This information, provided within a specific communicative climate, is formulated with selected and different communicative acts (formal, informal, asymmetrical, etc.) and has the purpose of bringing out the autonomy and self-regulation of the students by means of processes aimed at expressing directly – or indirectly bringing out – one or more elements of content previously listed through intentional pedagogical choices.

4. Active learning processes in doctoral programs through feedback

Taking up the definition of the previous paragraph, feedback is generally used as a tool that advisors offer to students, doctoral students in our case, to help them understand the results they have achieved in their task/research and improve their future work, in a regular, sufficiently-detailed and understandable way (Carless, 2006; Nicol, 2010; Orsmond & Merry, 2011; Scott, 2014). In particular, formative feedback is defined as information communicated to the student which is intended to modify their thinking or behavior in order to improve their own learning, if correctly delivered (Shute, 2008).

From an educational point of view, the role of the teacher will be to create situations where assessment and learning practices can respect this principle. To this end, teaching is necessary based on the so-called *learning by doing* idea (thus taking up the philosophy of John Dewey), where practical experience is the starting point for all educational

knowledge, summarized in the following points: (i) an increase of the engagement of the participants because one learns through engaging and dynamic experiences; (ii) bridging the training gap derived from an exclusively theoretical approach: learning processes are effective, fast and continuous; (iii) contextualization in real situations of the concepts, principles and tools learned; and (iv) immediately putting to the test the competences being trained.

Regarding learning by doing, the Active Learning is based on the work of Reg Revans, that is, the set of all teaching/learning methods conceived in constant interaction in order to allow the student to have a proactive role in their own learning. Active Learning, however, is based on the fact that formal education and theory are insufficient for learning and rather precise questions on urgent problems are needed in order to be able to take the necessary measures. Training, instructions or external skills are not required as the existing coded knowledge may not adapt to the specific context of a particular problem. Processes, like feedback, allow one to ask new questions and learn with colleagues or tutors, thus creating a multiplying effect of learning.

The objectives of Active Learning can be summarized as follows (Fedeli & Frison, 2018): (i) encourage significant progress on the treatment of real opportunities, challenges or problems; (ii) allow participants sufficient scope to learn by themselves and with others; (iii) encourage those who are committed to providing student development to work on learning from one another. Based on the philosophy of action (*praxeology*), Active Learning is a stimulating educational method that is much more than learning by doing, as it involves the participants in the experimentation of risk-taking through a degree of self-challenge, based on the fact that people can change others or an organization only if they can also change themselves (Rigg & Coghlan, 2016), thus combining personal development with action for change. The reason for acting and learning is personal, political and social, based on a critique of how things are and the desire for something better.

Revans takes his pragmatism from Dewey and advocates experiential learning. However, Follett, who criticized hierarchical structures and positional authority in the 1920s and 1930s, also resumed emphasizing the value of knowledge wherever he was. He supported the importance of the situation and of contextual collaboration (Graham, 1995). This approach was subsequently disseminated by Bonwell and Eison (1991), who developed a more engaging and empowering approach towards students by involving them not only in doing things, but also in thinking about what they did in order to improve their learning.

Barnes (1989) elaborates on the principles of active learning: (i) the definition of a purpose; (ii) the reflection on the meaning of what was learned; (iii) the negotiation of objectives and learning methods between students and advisors; (iv) the use of different ways and means to learn the content; (v) the comparison with the complexity of real life; (vi) the analysis of the situation and context; and (vii) real-life tasks are reflected in the activities performed for learning. Active learning therefore requires appropriate learning environments through the implementation of a correct strategy. The characteristics of an appropriate learning environment are that it is in line with socio-constructivist strategies; promotes learning based on research through inquiry and on authentic tasks; gives the students the ability to lead through self-development activities; structures an environment suitable for collaborative learning to build informal learning communities; cultivates a dynamic environment that, through interdisciplinary learning, allows generation of high-profile activities for a better learning experience; and integrates the previous one with new

knowledge to support a rich structure among students and action-based performance improvements (Barnes, 1989).

So why research the feedback between tutors and doctoral students? Fedeli and Frison (2018) explain that "the fundamental factors of the interactive methods are mainly the involvement of the learner, the continuous invitation to the interaction and to a continuous comparison, feedback and assessment with and within the group" (p. 256). They define some examples of exercises in support of active learning such as the more traditional ones, like the one-minute paper, think pair and share, training quizzes, computer-based interaction systems, and concept maps (Coryell, 2016), but also simulations and laboratory (Fabbri & Romano, 2017) techniques and methods related to work (Dirkx, 2011; Frison, 2016), such as business case, case analysis, problem-based learning, role play, performance-based learning and many others; in addition, cooperative learning, creative and art-based methods, and the latest methods related to meditation and mindfulness are presented. If we think about the use of technology, digital story-telling and serious games are introduced. Methods and supporting relationships are also synthesized, such as the methods which are based on the value of the relationship and on the personal and professional experience of people, like tutoring, mentoring, coaching, and counseling. If the research doctorate is one of the most *high* learning contexts, as it is oriented towards research training, teaching, and the so-called *third mission*, it is necessary to identify assessment methods that allow interactions between the subjects involved, so that learning can be as active as possible by the doctoral student and allows them to improve their skills according to an active and increasingly autonomous learning perspective. If feedback is a model of interaction between two subjects (in our case, doctoral student and tutor), what are the elements that, in terms of international research, emerge from the literature about its formative action? Which feedback allows the activating of active learning processes? And what role does technology, a form of communication that is exponentially spreading in the world of work and academics, take?

5. Aims and research questions

The aim of the research is to describe the *state of the art* of empirical research regarding the use of feedback as a practice for assessing students' learning in the doctoral program by tutors.

With reference to this objective, the following research questions are defined:

- What are the characteristics of feedback given by tutors to doctoral students? Do they correspond to those of the formative feedback?
- What is the feedback provided to doctoral students that enables active learning processes to be activated?
- Does the role of technology emerge in providing tutor feedback to doctoral students?

To summarize, we will find in our research:

- the *level of feedback* (whether reinforcement, process, or self-assessment);
- the *degree of communication of the feedback* and the modality of it (if it is timely, continuous, accurate and specific; it contains information about the quality of the results obtained in a task; it offers indications that lead to strategies and procedures that lead to an improvement; and it argues why and how to learn to improve, using

a clear and descriptive language that is also clear to the recipient, is disconnected or prior to a vote to solicit attention, and encourages reflection). A particular reference will be directed to the use of technology in the production of feedback from tutors;

- the ability of feedback to *activate active learning processes*.

6. Research design: data collection and procedures

Based on the theoretical framework[2] described, a scoping review was conducted to provide a picture of the feedback practices carried out by supervisors towards the students of the doctoral program. The main research was carried out in October 2018 in four databases: ProQuest (with reference to the Education and ERIC databases, limited to peer review contributions), Scopus, Web of Science (limited to the Core Collection Web Collection database), and EBSCO (considering the PsycArticle, PsycInfo, Psychology and Behavioral Sciences and Complete Educational Research Database, limited to academic journals reviewed by experts) (Figure 1). The research was limited to English literature, while no restrictions on the year or type of publication were imposed.

Aggregator / Editor	Strings	Output
Proquest	("Ph.D." OR "PhD" OR doctora*) AND (assess* OR evaluat* OR "exam" OR "exams" OR examin* OR feedback*)	3888
Scopus	SUBJAREA(SOCI) AND ABS(("Ph.D." OR "PhD" OR doctora*) AND (assess* OR evaluat* OR "exam" OR "exams" OR examin* OR feedback*))	4195
Web of science	TS=(("Ph.D." OR "PhD" OR doctora*) AND (assess* OR evaluat* OR "exam" OR "exams" OR examin* OR feedback*))	1021
EBSCO	("Ph.D." OR "PhD" OR doctora*) AND (assess* OR evaluat* OR "exam" OR "exams" OR examin* OR feedback*)	2725

Figure 1. Search strings.

For the construction of the search strings (identified for each database and shown in Figure 1), the key words that describe the object of the investigation, which is the assessment, with reference to the two terms that identify it in English (assessment) were used and evaluated. In light of a first analysis related to the same problem, it was appropriate to consider also some particular forms of assessment, for example the exam (exam[s] or exam), in order to include summative assessment forms, but also the feedback, with reference to the assessment of the training.

The terms that specifically identify the training context in which we intend to investigate the specific object, or the doctorate (Ph.D., PhD, doctora*) have also been considered.

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[2] For methodological references see, for example, Heyvaert, Hannes, & Onghena (2016), Heyvaert, Maes, & Onghena (2013), Gough, Oliver, & Thomas (2017) and Cooper et al. (2009).

Figure 2 shows the process of selecting contributions. The research led to the selection of 11.829 contributions for a more detailed examination of the contents of the abstracts. The exclusion criteria are as follows:

1. subject of study: feedback as an assessment practice;
2. research design: empirical research;
3. language of publication: English;
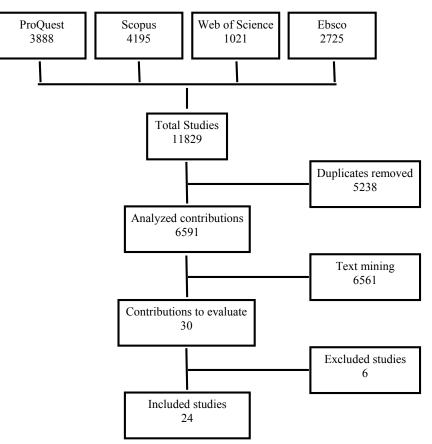4. publication period: no limit.

Figure 2. Selected contributions.

With the exclusion of 5.238 duplicates, carried out automatically, the analysis was carried out on 6.591 contributions. These contributions were then selected through a text-mining operation, i.e. extraction guided by a sequential protocol that allows the detection of the most important information by searching for certain words within the texts used (Ananiadou, Rea, Okazaki, Procter, & Thomas, 2019; Biemann & Mehler, 2014; O'Mara-Eves, Thomas, McNaught, Miwa, & Ananiadou, 2015). In the first phase of the extraction the texts corresponding to the search for the term *feedback* were identified; in the second step, the same operation was carried out on the texts that answered the search for the word *advisor*; while in the last phase an analysis was carried out by two researchers on the relevance of the research object and on the type of research carried out (empirical) of the 123 abstracts which guaranteed a Cohen K of 0.70, or a good consistency between the choices of the two reviewers. The selected contributions were 30.

	Author	Publication Year	Object	Context
1	Al Ahmad	2018	Redefine a course curriculum	Turkey
2	Björkman	2018	Doctoral students training for publication in international journals in English	Sweden
3	Sánchez-Martín & Seloni	2018	Gender impact on the mentoring process during the writing of the dissertation	USA
4	Taylor Vitale, Tapoler, & Whaley	2018	Define the mentoring method for the advisors	USA
5	Borders, Welfare, Sackett, & Cashwell	2017	Definition of corrective feedback	USA
6	Carter & Kumar	2017	Feedback and feedforward for two objectives: thesis writing and training of an independent researcher	New Zealand
7	Inouye & McAlpine	2017	Identify the relationship between the advisor's feedback with the development of the academic identity	UK
8	Odena & Burgess	2017	What facilitates the writing of the doctoral thesis	UK
9	Olmos-López & Sunderland	2017	Co-supervision and problem of conflicting feedback	UK
10	Hill et al.	2016	How the advisors helped to learn how to change a patient	Australia
11	Sampson Johnston, Comer, & Brogt	2016	Tool to stimulate feedback production	New Zealand
12	Stracke & Kumar	2016	Link between written feedback and self-regulation as a researcher	Australia
13	Tengberg	2015	Use of an agile approach to limit oversight, interaction, and feedback for doctorate time	Sweden
14	Woolderink, Putnik, van der Boom, & Klabbers	2015	Point of view of advisors and doctoral students on advisor work	Nederland
15	Basturkmen, East, & Bitchener	2014	Analysis of written feedback on the draft of doctoral dissertations	New Zealand
16	Frick & Glosoff	2014	Self-efficacy study as supervisors	USA
17	Mewburn et al	2014	Providing a feedback registration mechanism as an opportunity to clarify communication between supervisors and students, and improving the research of doctoral students: are there gender differences?	Australia
18	Odo & Yi	2014	Use of technologies to provide feedback to students	USA
19	Wang & Li	2011	Review of feedback practices with international students and impact on their doctoral theses	Australia
20	Allen et al	2010	Link between the student's anxious, resilient personality and feedback received	USA
21	Stracke & Kumar	2010	Relationship between feedback and improvement in thesis writing	Australia
22	Crossouard & Pryor	2009	Use of emails for formative feedback	UK
23	Mainhard et al.	2009	Importance of the relationship between advisor and doctoral student; perception of students	Nederland
24	Kumar & Stracke	2007	Feedback analysis written on the first draft of the doctoral thesis	Australia

Figure 3. Selected documents

The 30 contributions were subjected to critical assessment according to the following criteria (following the adapted form of the Dixon-Woods et al., 2006 model):

1. explicit objectives;
2. clear and coherent research design;
3. clear and explicit relationship of the process by which the results are produced;
4. sufficient data to support the results;
5. appropriate and adequately explained method of data analysis.

Furthermore, the authors identified the contributions around which the research questions were discussed.

For the purposes of analysis, the authors used *thematic analysis*, derived from an aggregative and interpretative approach, which aimed to summarize what is already known, established, and shared on the various aspects investigated (Tranfield, Denyer, & Smart, 2003). A summary table of the key features of the 24 documents used for the review is provided in Figure 3.

7. Main results

The main results of the review are presented starting from the initial questions, namely:

What are characteristics of the feedback given by tutors to doctoral students? Do they correspond to those of the formative feedback, described in the previous paragraph? What is the feedback provided to the doctoral students that enables active learning processes to be activated? Does the role of technology emerge in providing tutor feedback to doctoral students?

The results concerning the main characteristics of the analyzed studies are the following: as for the temporal distribution, the majority of the contributions are distributed between the years 2014 (4), 2017 (5) and 2018 (4). As for the geographical distribution, the contributions are distributed mainly in the US and Australian context (6), and in the European continent (9), of which 4 are in the UK; 3 are in New Zealand.

Regarding the analysis of the descriptive results of the contents of the empirical research selected in the review, the level of feedback was first considered, according to the distinction of Mory (2004), to identify either reinforcement, process or self-assessment (Figure 4).
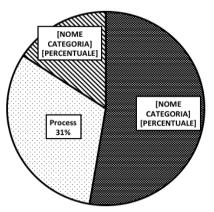

Figure 4. Perceived feedback level.

As can be seen from the graph in Figure 4, just over half of the feedback that is assigned by the supervisors to the doctoral students (with numerical reference to the amount of contributions and not to the subjects of the individual samples) is attributed to provide a reinforcement or support to what they are doing (generally in a summative and final perspective), therefore relating to the dissertation and drafting phase of the doctoral thesis. Additionally, 31% focused also on the students' process, while only 16% focused on the autonomy of the doctoral students by allowing them processes that lead to self-assessment and, therefore, to self-regulation (present and future) of the research work.

Regarding the moment of assessment, the reference is related to the subdivision of the doctoral period proposed by Ampaw and Jaeger (2012), already adopted in the contribution of Marcuccio and Silva (2019b), into transition, development and completion phases (Figure 5).
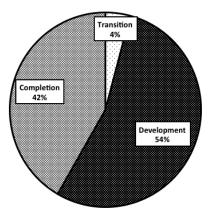

Figure 5. Distribution of contributions with respect to the time of assessment.

Reading the graph in Figure 5 shows how the process of providing feedback from supervisors is activated starting from the second phase (Ampaw & Jaeger, 2012), that of development (54%). This data allows us to emphasize that feedback does not take place exclusively during the elaboration and delivery phase of the doctoral thesis (completion phase, 42%), but an important role is given to the process and, therefore, to a training assessment. A hypothesis that we could draw on concerns the fact that the doctoral programs foresee intermediate assessment moments (for example, at the end of each academic year) and therefore the supervisors are required to provide feedback to their doctoral students.

Regarding the methods of presenting the feedback to the doctoral students, some topics emerge from the contributions that can be summarized as follows.

The first aspect concerns the involvement of doctoral students. Doctoral students require from their supervisors the possibility of activating negotiation processes, according to a two-way approach, that allows them to actively participate in the assessment process.

For this to happen and for the feedback to become more-and-more a tool to support self-regulation, it is fundamental (Butler & Winne, 1995), according to the students, to have the possibility of constant communication over time which can offer them the containment of anxiety and therefore support them emotionally from one point of view. It is therefore a practice of working through the use of dialogic feedback (Wang & Li, 2011; Yang & Carless, 2013) which requires working on multiple levels consisting of feedback and feedforward, ultimately leading to possibilities of new solutions and divergent thinking.

A second aspect concerns the request for constructive feedback which manages to identify, not only how much does not work, but also indications on the direction to take for the continuation of the research. Instead, they often highlight vague feedback which mainly concerns the linguistic nature of the content and less of the coherence between the different parts of the research.

It is therefore hoped, both by doctoral students and supervisors, for the latter form for the purpose of a comparison that will allow the doctoral student to modify the adopted strategies and, therefore, the results of the student himself according to a sense of responsibility. This support is also seen in the possibility of training supervisors aimed at drafting feedback, so that they can be clear, concrete, concise, and individualized in order to acquire self-coaching skills that allow them to reflect their own style and thus regulate themselves.

The third aspect concerns the motivation of the students, who are seen by the supervisors as not very open to receiving feedback, too rigid, or characterized by an often unreal optimism and not able to manage the available work time appropriately. It is therefore necessary to work often on the expressive value of feedback (Kumar & Stracke, 2007), one that allows support of the self-regulation processes that are sometimes lacking in doctoral students.

What is the feedback provided to doctoral students that enables active learning processes to be activated? Regarding the development of active learning processes, two aspects need to be highlighted.

First of all, a datum emerges from the analysis of the review: compared to the 24 total contributions, 10 were classified as *activating* an active teaching, 11 were not considered as such, and 3 were included in an intermediate area because they could potentially activate them, even if the contribution is not explicit. Among these contributions, those where process feedback and self-assessment were activated generally corresponded to the processes that activate active teaching. This aspect allows us to consider the importance of enhancing an increase of processes which, starting from process feedback, can generate more and more a path of self-regulation and autonomy on the part of the Doctoral students, both in the process of carrying out their own research and in their training as researchers.

What is the role of technology in providing tutor feedback to doctoral students? With regards to technology, only two contributions explicitly address the theme of the role of technology in drafting feedback from supervisors, that of Crossouard and Pryor (2009) and Odo and Yi (2014). The former underlines the risk of association on the part of supervisors to attribute a summative function associated with the use of e-mails for the exchange of feedback, although the importance of training for feedback is recognized by the authors. The latter describes how the use of technology can facilitate the scaffolding of academic writing according to a process of negotiated feedback and micro-mentoring, which develops in a two-way approach.

However, it is necessary to highlight a limit of the research: in many contributions where the feedback has been defined as being written, we have not been able to detect whether this writing took place in paper or digital form. Therefore, these conclusions concern the contributions that explicitly declared this object.

8. Discussion

From this review, even if of a qualitative nature, it is possible to deduce some considerations which can pave the way for future research.

Taking up the title of one of the previous paragraphs, let us try to answer the question, "What makes good feedback good?", in light of the results we obtained from the analysis of these 24 contributions and within the theoretical framework from which we started.

The first consideration concerns the concept of transition, which we have borrowed from Dewey (1938): feedback is good when it allows us to activate a system of relationships that allow a negotiated exchange of meanings. We highlighted in the results the request by doctoral students to participate more actively in the assessment and to understand the mechanisms and criteria adopted by the supervisors. This process, however, takes time: time to create a professional and personal harmony between the student and the supervisor, time to understand and enter into the logic of assessment activated by the teacher, and time to be able to reach a state of ability to be able to accept feedback and answer the same, if desired (Allen et al., 2010; Mainhard et al, 2009; Sánchez-Martín & Seloni, 2018; Stracke & Kumar, 2010)

The second aspect concerns active learning processes. This learning, based on *learning by doing*, seems to be linked to the possibility of writing feedback for their doctoral students throughout the process or doctoral course. The question we can ask then could be why not train for feedback right from the beginning of the doctorate? Why not allow the creation of a system of relationships that facilitates the transition mechanism (also described by Dewey in 1938). The gradual training could concern, in particular, the doctoral students in the first semester of the first year of the doctorate. At the same time this training should also be facilitated in the supervisors, thus activating parallel processes that, although challenging from a temporal point of view, could guarantee a gradually greater autonomy in the doctoral student, and therefore less effort in the correction phase of proofs or research reports and, according to the perspective of a balanced assessment system of which we spoke of in the first part of the contribution, a graduation in the established time frame (Carter & Kumar, 2017; Mewburn et al., 2014; Sampson et al., 2016; Tengberg, 2015).

The third aspect takes up the very concept of autonomy and, in particular, self-regulation. This autonomy is poorly understood, both by doctoral students and by advisors, even if necessary, for the training of young researchers. It would take precise empirical data to be able to demonstrate it, however we already have some elements from the review to define how we can favor this process of continuous improvement through self-assessment tools that allow students, with a regular frequency, to be able to orientate their work, first accompanied by a tutor, and then independently. This tool could support the active learning process, for example, through technology. We cannot fail to mention the potential role of the use of an e-portfolio for doctoral students (Giovannini, 2018; Clarke & Boud, 2018; Giovannini & Moretti, 2010; Rossi & Giannandrea, 2006; Rossi, Pascucci, Giannandrea, & Paciaroni, 2006) which, through this streamlined and practical tool always at hand, allows one to gather evidence about one's doctoral process and also detect reflections that may, over time, support active learning and the exercise of self-regulation (Carter & Kumar, 2017; Frick & Glosoff, 2014; Inouye & McAlpine, 2017; Odo & Yi, 2014; Stracke & Kumar, 2016).

9. Conclusion

Certainly, an analysis to be carried out should be that of the role of dialogic feedback, both on the part of the peers and on the part of the supervisors. Starting from an analysis of the literature, the formal assessment practices will be explored in the context of the University of Bologna and non-formal tutors and supervisors. A questionnaire addressed to the professors of the doctoral program and focus groups composed of some doctorates coming from research doctorates of different disciplinary areas will investigate the practices already under assessment during the PhD course and the possibility of experimentally implementing them to form a new assessment model that meets the criteria described.

The feedback, however, does not assume a value that is an end in itself and governed by rigid rules, but rather assumes an importance within relationship and communication. Only through personalized and finalized work will it be possible to activate self-regulation and active learning processes on the part of the doctoral student. Different doctoral students need different frequencies, types, and methods of feedback. The important role of supporting the feasibility of the challenging work of the advisor comes from the possibility of increasing feedback models from peers or mentors who can support processes that they should have recently experienced in a similar context (Boud & Lee, 2009).

Indeed, feedback takes on importance when it is shared not as a non-linear process but as an intertwining of different types of assessment and learning which can be analyzed within a context from a socio-cultural perspective (Esterhazy, 2018; 2019). We cannot therefore speak on absolute good feedback, but of suitable feedback within a given report and a given context.

The limitations of this research can be traced back to two issues. The former concerns the selection of contributions: drawing conclusions, albeit qualitatively, from 24 contributions certainly including the exclusion of contributions that may have been important according to the change in research, but the choice of the database to be consulted, the choice of keywords, the exclusion from the gray literature from the research and selection of restricted English-speaking literature has likely led to a failure to take into account the totality of the relevant contributions.

The latter limitation concerns the qualitative approach to the analysis of results: the topic of the use of feedback by the advisor consulted by the research doctorates is still not widespread from a quantitative point of view in order to carry out a sound second level analysis.

The theme of the use of feedback also in an informal way remains open to new research possibilities, even in contexts different from that of the research doctorate, such as, for example, in the preparation of the graduate thesis, in the classes of primary and secondary schools, in non-formal contexts as work contexts where projects and experiences can be realized where feedback analysis is relevant as an evaluation practice. In this way, the object and the results of the present analysis make it possible to open new avenues of research that can be potentially followed.

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