Feedback Revisited: Definitional, Structural, and Functional Issues

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Abstract: This article provides a more fundamental overview that addresses the following provisions associated with feedback in an integrative way. First, several linguistic and definitional issues relating to the term 'feedback' are discussed. Second, the article draws attention to the challenges and implications associated with online feedback being increasingly used primarily during the contemporary shift toward online learning. Then, the article spots light on the importance of feedback at multiple levels, followed by a discussion of feedback purposes and potential benefits on student learning and progress, both in the short and long term. This article seeks to contribute to the literature on formative feedback by providing a more profound understanding of the conceptualizations of feedback by incorporating definitional, structural, and functional issues about feedback both as a construct and a practice.

1 Introduction

Feedback is widely considered a vital component of the assessment process [1, 2, 3, 4]. Looking into the substantive body of literature on assessment feedback, various conceptualizations exist, along with multiple categorizations that distinguish between feedback types based on their forms and focus. However, the concept of feedback as an instructional tool and a practice is rarely unpacked in a way that considers and links these multiple conceptualizations and categorizations coherently and holistically while drawing on the assumptions underpinning the concept. Aiming to synthesize the research literature on this matter, this article provides a more fundamental overview of the conceptualizations of feedback by incorporating definitional, structural, and functional issues about feedback both as a construct and a practice.

- *On the meaning of the term 'feedback': linguistic and definitional issues*

To start with, it is worthwhile to discuss how the word 'feedback', frequently used in our life, originated. Etymologically, the term combines the verb 'feed' and the adverb 'back.' According to Cambridge Academic Content Dictionary, the term feedback means the reaction to a process or activity or the information gained from such a reaction [5]. Historically, the term appeared in the 1915s-1920s in the realm of mechanical and electrical engineering with a technical sense as an open compound noun "feed & back"; indicating the action of returning to an earlier position within a closed mechanical system [6]. The Feedback mechanism, in this sense, reflects a process in which a system regulates itself while monitoring its output; it "feeds back" part of its output to itself [6]. The term has been used to convey a similar meaning in biology as it denotes a self-regulatory biological system, such as in hormone synthesis, in which the response or output affects the input, either positively or negatively [7]. Later on, during the 1940s, the term acquired more generalized meanings and interpretations from the field of psychology, which shaped the current popular meaning of the term, referring to it as helpful information or criticism [8]. Since then, this modern form of the term has become a concept of interest to theorists across different disciplines, such as business and education. Looking at the term in the Arabic language, the [9], a commonly known search engine for translations in context, gives the following translations as the most frequently used ones to denote the word feedback in Arabic:

- التغذية الراجعة، تلقيم استرجاعي تغذية ارتجاعية، تغذية مرتدة، (feedback)

- تعقيبات، ملاحظات، تعليق (comments, notes, or remarks)

- استجابة، ردود فعل (reaction, response)

In the discipline of Translation Studies, these translations show that the source term in English, 'feedback', has been translated into Arabic using different approaches. For instance, feedback is most commonly translated in English to التغذية الراجعة (feedback) using the literal or direct translation technique, or what so-called word-for-word translation, where each

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word in the source text is translated directly using the same idiomatic expression and the word order [10] . On the other hand, the Arabic terms تعليقات، ملاحظات، رد فعل (comments, notes, reaction) were translated focusing on the meaning that should be transferred between two languages. Meaning they used different phrases than that in the source term to convey the same idea in a way that is more relevant to the word context without altering the essence of the meaning to be more understandable to the target language reader [10]. Noticeably, "التغذية الراجعة" is the translation that is most commonly used in the Arabic academic contexts, as well as across Arabic-based journals. Promoting a better understanding of the extent to which these translations accurately and precisely transmit the intended meaning of the source term "feedback" in Arabic could be tackled further in future work as it is beyond the scope of this article. Moving to the context of education, the prevalent general understanding found in the educational literature and reviews relating to assessment and feedback represents feedback as information communicated to the learners to improve their performance. Generally, all post-response information involving an element of assessment or evaluation is considered feedback (e.g., facial expressions, body gestures, grades, advice, praise, or criticism) [11]. Also, feedback encompasses all sorts of dialogues that support learning [12]. These may take various forms of formal and informal communication, such as oral, visual, and text-based feedback [13]. As explained by [14], feedback can be as simple as a response to the student's question, a question intended to push the student's thinking further, or an encouragement; in other cases, it may require re-teaching of an important concept or giving activity. Furthermore, feedback can be communicated manually, face-to-face, or online (e.g., as an audio file or via an automated computer-based system) and may come from several sources, including educators, peers, or even the students themselves [2]. For instance, feedback for [15] includes the information teachers receive from their students on the effectiveness of their instruction to enhance it, indicating the reversed impact of feedback. Given the proposed professional definitions, [13] pointed out that feedback was initially defined as knowledge of results that identifies correct/incorrect answers or indicates the earned mark. [16] defined feedback as all post-response information that notifies learners of their actual learning or performance to help assess if the current state is equivalent to the learning aims. It is essential, though, to know that as [17] pointed out many decades ago, the information provided via feedback should not be merely about the outcomes but rather the gap between the actual and reference performance levels. Accordingly, the narrow perspective of feedback has been widened to reflect the knowledge that enables students to understand better how they are doing and informs them about the expected learning goals and how they can improve to attain those. In this sense, feedback information is to acknowledge as well as to enable change. Drawing on this notion, [18] and [19] defined feedback as the act of identifying the gap in learning and reducing or closing it. According to [20], this gap may address aspects related to the learner's understanding, skills, or behavior. Importantly, recent changes in the conceptions of feedback have mirrored significant shifts in focus and emphasis. Specifically, they challenged the old definitions, which were mainly linked to the input dimension of the feedback practice regarding the nature of the communicated information or its purpose. Instead, they emphasized the active learner engagement with feedback while advocating the notion of shared responsibility between the teacher and the learner; signaling the balanced roles in the feedback practice [21, 22, 23, 24]. This moved the discussion around feedback from identifying a shared goal to executing shared responsibility. Consequently, the recent conceptions of feedback became much more complicated as they considered the interactions involved in the overall practice of giving and receiving feedback, such as that between the student and the feedback information and the provider of that information. One concept that is gaining ground in research on feedback and is central to the entire discipline is "feedback literacy" which builds on core guiding elements to help establish a holistic approach to developing effective feedback practices in an attempt to establish a shared understanding of feedback [25, 22, 26, 27,28]. The concept of feedback literacy entails the understanding, capacities, and dispositions needed to engage productively with feedback [22]. These provisions of feedback literacy started to stand out amongst the issues addressed recently in higher education research on assessment [29]. Another exciting concept is the "360-degree feedback" borrowed from business discipline to evaluate employees' performance. From an educational perspective, the concept illustrates an integrative framework for learning and assessment by addressing the interplay between self, peer, and teacher assessment [30]. The groundbreaking notion of "transformational feedback" was also put forward by [31], which considers the resulting impact of the feedback and whether it promoted transformation in terms of positive change, both within and beyond the current courses or assignments students are undertaking. Thus, for feedback to be distinguished as transformational, it needs to upgrade the learner to a higher level.

- *Online feedback: Challenges and Implications*

Within the definitional frame discussed above, the feedback includes information conveyed through digital mediums, such as written comments typed by the teacher or posted as voice messages via online learning platforms. These feedback forms require special attention, especially during the contemporary time when teaching shifted to online mediums in response to the pandemic of COVID-19. This is mainly because, unlike direct or face-face oral feedback, online forms of feedback lack the visual and acoustic elements necessary to ensure that the intended message is correctly conveyed, which improves understanding and helps enhance communication [32]. They also generate trust and empathy and create the most significant interpersonal impact [33]. Accordingly, the lack of physical expressions (e.g., the tone of the voice, body language,

intonation, and facial expressions) may increase the risk of misinterpreting the intended message, resulting in a defect in online feedback. Thus, teachers must be fully aware of the quality of their online feedback interactions while constructing their online text or voice message for students since such essential communication components are not supported [33].

- *Functional spotlight on the importance of feedback.*

Generally, high-quality assessment and constructive feedback are integral components of the pedagogy and curriculum. Specifically, research into the critical role of formative feedback on students' learning has a long history [34], with a growing consensus on its significant importance [35. Existing evidence from the research indicated that formative feedback is the most vital component of the assessment process [3] is a fundamental pedagogical practice [1] is an essential feature of any classroom [36] is an integral aspect of the learning experience [2] and finally, is central to the development of student learning [7]. Much earlier, the pioneering comprehensive review that conducted meta-analyses of 87 studies focusing on students' overall achievement concluded that feedback had had the most potent influence among other variables [37]. This finding was reaffirmed later by [38] comprehensive review of the formative assessment indicating the substantial effect of feedback on students' learning compared to other aspects of teaching. Moreover, many students who took the feedback seriously for their learning acknowledged the superior value of feedback [39]. For instance, according to the student's point of view, regular helpful feedback is a characteristic for judging the courses' quality and distinguishing the best ones [40]. The amount of time and attention devoted by the teacher to provide feedback is also a criterion that the students use to judge the teacher's competency [41]. Additionally, the task of providing constructive feedback is considered by many students as a teacher's "professional obligation" [1]. Taking it all together, the importance given to the feedback is vivid for academics and students precisely because it is a prioritized instructional practice that helps students reach learning goals, justifying the need to bring it into the spotlight.

- *Overview of feedback purposes and potential benefits*

In expanding the discussion on the importance of feedback, it is instructive to take a closer look at the numerous purposes and functions of feedback in the classroom [36]. The role of feedback specifically stands out in the formative assessment in which science teachers capture data, both product and process data, to appraise, judge, or evaluate students' work or performance while learning is in progress, whether it is from the individual student, a group of students, or the class as a whole [42]. This process is a routine-based practice in traditional classrooms [14]. In principle, three questions frame the formative assessment activities: where are you going? Where are you now? Moreover, how are you going to get there? This makeup is often called the formative assessment or feedback loop [43]. Therefore, teachers are expected to elicit, analyze, and respond to the obtained formative data about the student's understanding relevant to the learning goal to identify where and how the ongoing learning can be enhanced and supported [35]. Responding to the collected data by giving feedback to acknowledge students about their current performance and help them reach learning goals is the most crucial step in the formative assessment loop. This action helps students move toward learning goals [14]. In this sense, feedback acts as a tool that communicates the learner's results and fosters positive change in an ongoing and developmental manner [44]. The following quote serves as an essential illustration of this point: To help students reach learning goals, which is the third step, and perhaps the most important, teachers need to give them feedback that points out inconsistencies in their thinking, gives them information that will help them to improve their work or connects what they know to more advanced concepts, or in some other way. This is how feedback acts on this gap [14]. Building on the above, for any feedback information to be formative, it must address three significant dimensions of student's learning: 'how am I going?', 'where am I going?', and 'what to do next?' [4]. In doing so, feedback will serve three vital functions: determining targets for learning, providing students with information that can help them recognize the gap in their learning, and taking actions needed to close the gap to help learners improve [44]. Achieving these three functions through formative feedback has been described by [19] as closing the performance gap, that is the gap between the actual level of performance and the desired level of performance [45]. In such a manner, actionable feedback becomes a valuable opportunity to recover students' deficiencies and progress [46]. Besides closing the current performance gap that concerns how things are going, feedback should also feed forward; in other words, it needs to facilitate future improvements by considering the potential errors for the subsequent work or assignments [47, 48]. This function of feedback is commonly referred to as "feed-forward." Other names have been attached to feedback that can be used for future purposes, such as future-oriented and general feedback [13]. For instance, [43] explained that feedback is the response that acknowledges the student about the correctness of their answers (such as confirming that the bee is an animal). In contrast, feedforward is when the teacher provides a response that indicates what a student might do in addition (such as explaining the criteria on which we decide whether something is an animal or not). For some students, this type of feedback is seen as most valuable because it takes them beyond the objectives of the current work that has been just submitted. This is especially true in the case of skills-based feedback, which focuses on procedural and technical knowledge that students need to master throughout their current and future learning [49]. Comparatively, content-based feedback, limited only to the assignment at hand and framed within a particular learning objective that has no applications in another objective purpose area, does not provide any opportunity

to feed forward into future learning. [50] found that most tutors' written feedback mainly focused on the current content and neglected the long-term learning dimension of feedback. Overall, feedback may serve several functions. Drawing on these, a variety of feedback categorizations have been established by many scholars. For instance, [13] proposed the following functional categorization of feedback types: a symbolic mark or grade to represent the global quality of the work; a description of the quality of the work; a detailed explanation or justification of the mark; praise on what was done right; diagnoses of weaknesses (criticism); encouragement for affective purposes; and instructions or suggestions on how to attend to specific deficiencies and strengthen the work as a whole. Like those, [51] highlighted five potential functions of feedback: correction, reinforcement, forensic diagnosis, benchmarking, and longitudinal development feed-forward. [52] classified written feedback functions: as feedback that identifies errors, corrects errors; explains errors; demonstrates correct practices; engages students in thinking; suggests further study; provides praise; justifies marks, and offers approaches for future assignments. On the other hand, [4] identified four different kinds of feedback for academic writing: feedback on the task or product, feedback on the process, feedback on self-regulation, and personal feedback. Regardless of the function, the feedback ought to serve, the content, focus, and amount determine the extent to which the feedback will support learning.

Conclusion

This article clarified the centrality of feedback in the assessment processes and its paramount importance for quality teaching and learning. It also explained how the assumed or stated definitions of feedback often vary across different disciplines and contexts with multiple understandings of the feedback targets and scope of the feedback practice. Existing conceptualizations of feedback often contain stated or unstated assumptions about potential purposes, the intended impact, the feedback forms, content, and sources, or the nature of communication via feedback, all of which determine the extent to which the feedback will support learning. Overall, although mechanics and psychology had the most significant impact on the initial conceptualizations of the term feedback, the new conceptions derived from the educational literature added new essential elements that are more directed toward the shared interactive role between the educators as feedback providers and the learners, as well as place much attention to its effect on the learners. Therefore, the current work reinforces the need to move away from the limited view of feedback to a more holistic one that better captures the full role and complexity of assessment feedback in the learning process, significantly improving the theory and practices of feedback.

Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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