

On the Weakness of Feedback in Education

Caroline Yoon, c.yoon@auckland.ac.nz

Abstract: I critique the dominant use of the term *feedback* to describe the act of giving and receiving critical appraisals in education. A comparison of the historical meaning of *feedback* in systems theory with definitions of educational feedback reveals that the term can reduce or even remove the role of the teacher from the critiquing encounter, in favor of viewing the learner as autonomous and self-regulated. I present an alternative view of the giving and receiving of critical appraisals that draws on Biesta's (2016) description of the 'weakness' of education to emphasize feedback as a human encounter.

Introduction and study context

In education, the term *feedback* is often used to describe a performance appraisal that is given to a performer in the hope of yielding improved subsequent performance. The term *feedback* invokes the notion of a closed loop where information provided by an agent (often a teacher) is inputted back into the system by being received and acted on by the performer (often a student). But this is an ideal scenario. In practice, feedback offered to students is frequently ignored, rejected, and not implemented. Attempts to close the loop require effort, and sometimes even violence to the extent that students are forced to accept feedback that is difficult to bear. Of course, appraisals of a critical nature are more likely to be rejected: students are generally happy to receive praise.

Feedback can involve "difficult knowledge" and "inconvenient truths" (Biesta, 2016, p. 57) that are uncomfortable for the speaker to say because they are uncomfortable for the listener to hear, and can provoke the listener in surprising and unpredictable ways. As an encounter between humans, the feedback act is one of risk and uncertainty. Yet the language of feedback is of mechanisms and cybernetics, of automaticity and control, where risk and uncertainty are to be minimized or eliminated altogether. What is gained by using the language of feedback to describe the educational practice of giving and receiving critiques? And does this make up for what is lost?

This paper describes some of the theorizing that took place in a Design Based Research project that sought to make students more sensitive to their own mathematical thinking by having skilled observers report back to students on the mathematics they observed them doing. Initially, these reports were conceived using the language of 'feedback', and the first 11 design cycles focused on crafting the feedback content through careful analysis of students working in teams of three on four hour-long mathematizing sessions (for more details of the project design, see Yoon, Chin, Moala & Choy, 2018). This feedback was delivered by the observer to each student team in a face-to-face conversation to give students the opportunity to ask questions and seek clarification. However researchers found these reporting conversations practically unsustainable, so charged were they with tense and uncomfortable affect from both students and the observer delivering the feedback. This practical problem led to a significant revision to the way the reporting sessions were designed and subsequently conceived.

Part of the theorizing that was undertaken to explain the design failure of the first 11 cycles involved a careful theoretical analysis of the term *feedback* and some philosophical assumptions associated with the term: this theorizing is shared here. By comparing the meaning of 'feedback' in its original context of systems theory with its use in education, I argue that the language of feedback can work to remove teaching from the critiquing encounter, turning it into something that is solely learner-driven. I then argue that the use of cybernetic language to describe the feedback act is an example of what Biesta (2016) calls the 'learnification' of education, an attempt to strengthen education through the 'strong' language of learning, which runs the risk of removing what is educational from the critiquing encounter altogether. A solution can be found, I propose, in Biesta's characterization of teaching as 'weak', which enables us to talk about that which is left out from the language of cybernetics: those weak moments in the critiquing encounter, those moments of teaching.

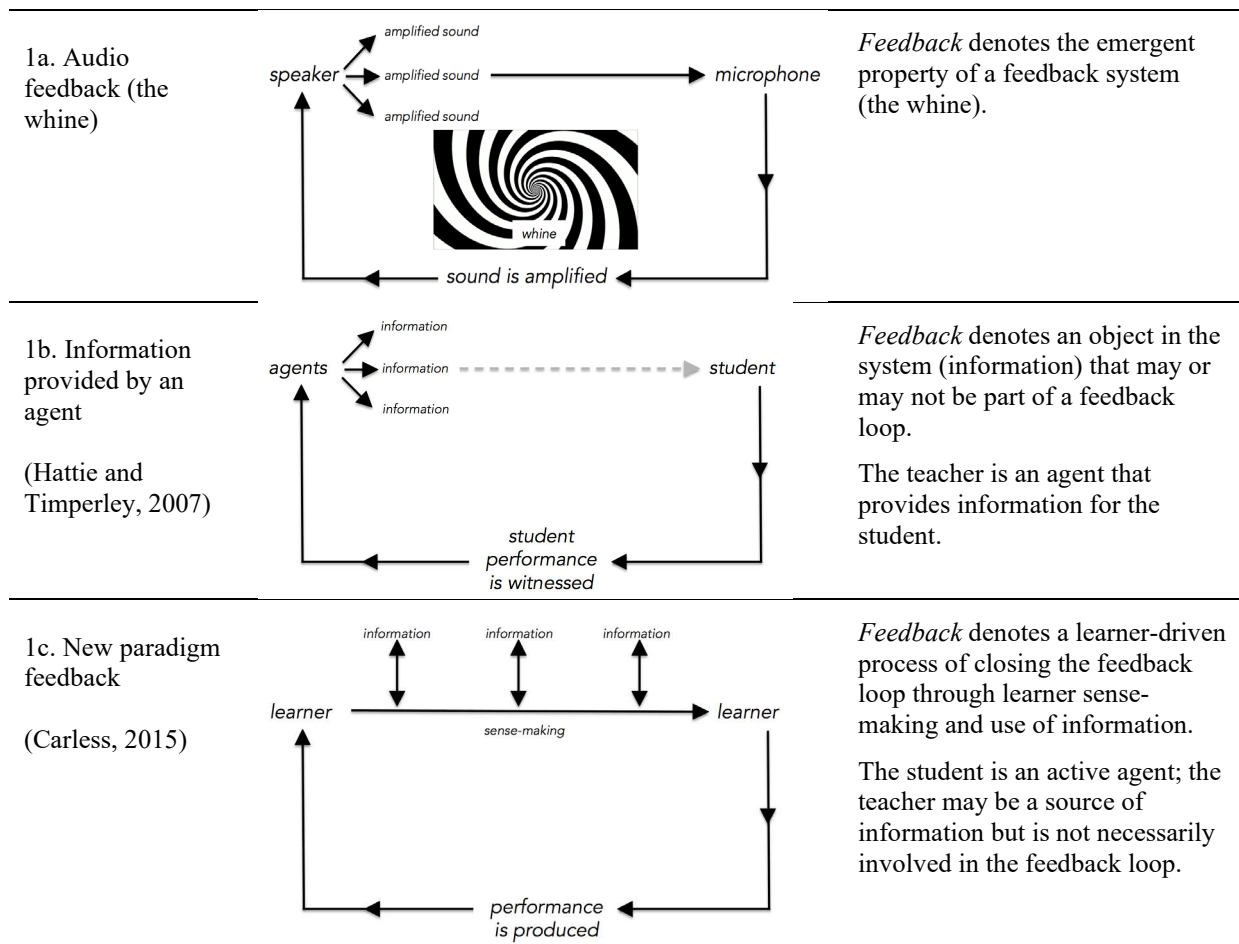
The cybernetic language of feedback

Historically, the term 'feedback' appeared in the 1800s to describe self-regulating systems in science and engineering in which outputs of the system are 'fed back' as inputs into the system to create a feedback loop. In audio engineering, sound that has been amplified through a loud speaker can re-enter a microphone, creating a distinctive high-pitched whine or howl (commonly called 'feedback'), as the signal gets amplified over and over by audio output returning to the system as input. This example is of particular interest in this paper for its use of

the term ‘feedback’ to name the whine produced by the system. Like ‘feedback’ in education, audio ‘feedback’ refers to a specific element of the feedback system, and comparing these two naming practices can illuminate some of my concerns about the way it is used in education. It is worthwhile, then, to explore the audio engineering example in some detail.

Mathematically, feedback describes a circularity of action arising from repeated, looping cause and effect. This circularity of action is evident in the audio engineering example in the relative positioning of amplifier and microphone so that signal from the first can be received by the second (see Fig. 1a). The initial sound that enters the system to incite the distinctive whine may be something as simple as a cough, which bears no auditory resemblance to the whine. The sound of the cough and the sound of the whine are different entities in this system: the first is a component part of the system, whereas the second is a property of the circularity of action in the system. The whine is not the sound of somebody deliberately squealing into a microphone, but a sound that emerges from the repeated cycling of signal through the microphone and amplifier network. It is an *emergent property* of the feedback loop—one that cannot be removed from the circularity on which it depends.

Strictly speaking, calling the whine ‘feedback’ is a category error as the whine is not the system’s circularity of action, but a property emerging from that circularity; it is not the process of feeding back, but an emergent property of that process. But the whine owes its existence to the circularity of action present in the system, so calling it ‘feedback’ can be understood as acknowledging the feedback process that gives rise to it. Can the same be said of the use of the term in education? I now turn to examine two definitions of educational ‘feedback’. Just as I did with the audio engineering example, I analyze the structure of each system to identify the element each definition calls ‘feedback’.



Figures 1a, 1b, & 1c. A comparison of what is named ‘feedback’ in audio engineering; as defined by Hattie and Timperley (2007); as defined by Carless (2015).

Feedback as information provided by an agent

The term feedback is most often used in education to describe a performance appraisal that is given to the performer (usually a student) in the hope of yielding improved subsequent performance. One such popular definition is as follows:

Feedback is conceptualized as information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one's performance or understanding. (Hattie & Timperley, 2007, p. 81)

The system described in this definition can be diagrammed (see Fig. 1b) to reveal a very similar structure to the feedback system in audio engineering (Fig. 1a). Here, the student takes the place of the microphone, with its capacity to receive and use information provided by agents such as teachers, peers, and so forth. The student's performance is observed by various agents, who generate information that, like amplified sound, can be received by the student to enhance later performances. The fundamental structures of Figures 1a and 1b are isomorphic, save for the arrow that returns to the microphone/student. In the audioengineering example, the arrow is definite, showing certainty in the output (amplified sound) being fed back into the system as input. In contrast, the grey dotted arrow in Figure 1b shows there is no guarantee that information provided by agents will be accepted and used by the student.

If there is no guarantee that the output of 'information' will be 'fed back' into the system, can we justify calling it 'feedback'? I argued that the audio engineering example was justified in naming the whine 'feedback' by virtue of its being an emergent property of a feedback loop. I have depicted whine in Figure 1a as a swirling spiral that emerges from the system as a whole, not from any one of its parts. In contrast, the Hattie and Timperley (2007) definition uses the term 'feedback' to describe a component part of the system (see Figure. 1b). Both cases are technically category errors for using a term that describes a system's circularity of action (i.e., a feedback loop) to name a specific entity of the system. But whine depends on circularity of action occurring in the system, whereas information can be offered to a student whether a student receives it or not. An analogous naming act in the audio engineering example would be to call the amplified sound of a cough 'feedback', whether or not it is picked up by the microphone.

This distinction highlights my main concern with the practice of calling 'information provided', feedback. Not only does it anticipate a feedback loop where none is guaranteed, and confuse an object in a loop with the loop itself, it names something as 'feedback' that can exist even if no feedback loop occurs. Educational 'feedback' is a misnomer because it does not require a feedback loop.

A "new paradigm" of feedback

David Carless (2015) proposes a "new paradigm" of educational feedback in which he uses the term in a way more closely aligned with systems theory. He characterizes the Hattie and Timperley (2007) definition of feedback as falling under an "old paradigm", in which feedback is monologic in its one-way transfer of information that is typically provided in the form of written comments from a teacher. Carless states:

Feedback is a dialogic process in which learners make sense of information from varied sources and use it to enhance the quality of their work or learning strategies. (2015, p. 192)

Here, feedback is conceptualized as a *process*, which contrasts with the old paradigm's conceptualization of feedback as an element of a process. Furthermore, this definition positions learners as agents of this process, active in making sense of and using information to enhance their work. In the Hattie and Timperley (2007) definition, it is teachers (or other providers of information) who occupy this active role. However, teachers can only generate information and are powerless to ensure whether the information that they provide is received or acted on, which is something only learners can control. By replacing teachers with learners as the active agents in the process, Carless effectively builds circularity of action into his new definition because the learners work to close the loop themselves (see Fig. 1c).

By defining feedback in terms of learners' sense-making and use of information, Carless automatically excludes any instances in which information is not received or acted on by students. The many instances in which teachers provide critiques that are not accepted, understood or used by students do not feature in Carless' definition of feedback: they are not instances of educational feedback. "New paradigm" feedback is not information with the potential to contribute to a feedback loop, but is the process of closing the feedback loop itself, viewed from the perspective of the learner. Thus, Carless solves the problem of the uncertainty caused by the teacher's powerlessness in the "old paradigm" definition by removing the teacher altogether.

The weakness of teaching: The learnification of education

Biesta encourages us to embrace what he calls the “weakness of education”, in which education’s weakness can be seen as its inability to guarantee a desired outcome due to its being fundamentally a dialogic process between humans (2016, p. 3). This weakness should not be regarded as a source of embarrassment, something to be controlled or minimized. Rather, the weakness of education can orient us towards possibilities for dialogue that arise in moments of “weak connections of communication and interpretation, of interruption and response” (Biesta, 2016, p. 4), including those that are present in the act of giving and receiving critiques.

Biesta introduces the term *learnification* to describe the increasing prevalence of the language of learning in education, with terms such as *life-long learner*, *learning society*, and *learning environments* becoming more commonly used. He acknowledges that the rise of this “new language of learning” may be motivated by the desire to empower students and move away from authoritarian notions of teaching. But he warns that learnification also involves a move away from the importance of relationships, and towards a focus on individualism and control. Individualism can be seen in the very process of learning, a process that can only be done for oneself, never for someone else. In contrast, relationality is assumed in the language of education, where “there is always the idea of someone educating somebody else” (2016, p. 126). Control is evident in the description of teachers as ‘facilitators of learning’, whose purpose is not to teach, but support and enable the process of learning. The teacher’s ability to provoke students through the act of teaching is replaced by an emphasis on what students can ‘learn from’ their teachers. Biesta argues that the emphasis on ‘learning from’ rather than ‘being taught by’ can see the teacher being reduced to the status of a resource, which, much like a textbook, students can control by choosing what to learn.

A similar emphasis on individualism and control can also be seen in the language of feedback, where teachers are described as “sources of information” if they are mentioned at all. Weak moments are excised from Carless’ (2015) “new paradigm”, which does not even consider that information might not be successfully fed back. The cybernetic language describes feedback as smooth, controlled and determined by the learner. This is taken to the extreme in Carless’ (2015) notion of ‘sustainable feedback practices’, which sees the emergence of the autonomous self-regulating learner who needs nothing beyond their own motivation and capacity to generate and use information to continue their learning. In such a situation, learning is inevitable, “something we cannot *not do*” (Biesta, 2016, p. 59).

Biesta views the characterization of learning as a naturally occurring phenomenon, one that is “on the same par as breathing and digestion” (Biesta, 2016, p. 68), as an example of attempts to make education ‘strong’: if learning is a natural process, it is inevitable that it will occur. A similar inevitability is signalled in the language of cybernetics, whose use can similarly be viewed as an attempt to strengthen feedback, by making it smooth and inevitable, like a closed loop. The relationality of teaching brings an unpredictability, a riskiness, a propensity for provocation that does not fit well with the ‘strong’ language of cybernetics. Thus, it is not surprising to find teaching being marginalized or even nonexistent in cybernetic definitions of feedback.

Conclusion and implications for design

I have argued that the cybernetic language of *feedback* promotes notions of autonomous learning, but ignores the riskiness of the human encounter. Biesta’s language of the weakness of teaching returns our attention to this riskiness, in which the critiquing encounter is seen as weak in its inability to ensure a transaction occurs. In the DBR project that prompted this theorizing, an enhanced appreciation for the weakness of feedback led to subsequent revisions that drew on practices in family therapy (Andersen, 1987) to redesign reporting conversations. In the revised design, interactions between students and observers were carefully structured to enhance students’ ability to attend to the alterity expressed by the observers in such a way that acknowledged and managed the influence of power relations in speaking and listening to critique.

References

- Andersen, T. (1987). The reflecting team: Dialogue and meta-dialogue in clinical work. *Family Process*, 26(4), 415-428.
- Biesta, G. J. (2016). *The beautiful risk of education*. New York, NY: Routledge.
- Carless, D. (2015). *Excellence in university assessment: Learning from award-winning practice*. New York, NY: Routledge.
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81-112.
- Yoon, C., Chin, S. L., Moala, J. G., & Choy, B. H. (2018). Entering into dialogue about the mathematical value of contextual mathematizing tasks. *Mathematics Education Research Journal*, 30(1), 21–37.