

# Byte-sized edtech research



## How can educational technology support constructive feedback?

Figure 1 Based on Wiggins' criteria (2012)



- Giving constructive feedback can improve learners' knowledge and skills, particularly if it is regular, balanced and accessible.
- Educational technology (edtech) has the potential to provide effective feedback, which can promote self-regulated learning.

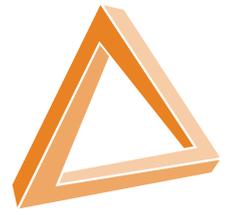
- Edtech can provide immediate, automated support to students' work, and respond to performance and progress over time.
- In some well-designed learning activities, giving learners conflicting information can also improve learning.

“Feedback is the information provided by an agent (e.g., teacher, peer, book, parent, self, experience) regarding aspects of one’s performance or understanding [...]. Feedback thus is a ‘consequence’ of performance.”

Shute, 2007

“[Feedback is] information communicated to the learner that is intended to modify his or her thinking or behaviour for the purpose of improving learning.”

Shute, 2008



## 01 The importance of constructive feedback

**Providing constructive feedback to learners is generally regarded as one of the most influential teaching approaches to improving knowledge and skills, particularly if it is regular, balanced and accessible.**

However, handled badly, feedback can negatively impact on motivation and learning. For example, a learner that gets a poor grade may drop out rather than risk performing badly

again. This might lead to the learner being labelled as lazy instead of requiring support. Wiggins (2012) says helpful feedback is goal-referenced, tangible and transparent, actionable, specific and personalised, timely, ongoing, and consistent.

**Conclusions:** Carefully-designed educational technology (edtech) can provide constructive feedback that fulfils Wiggins’ criteria. This has been shown to improve learning performance.

## 02 Using edtech to provide feedback

**By providing feedback that focuses on how learners should improve their work, teachers can encourage them to feel that they are making progress.**

Edtech also has the potential to provide feedback, and this can promote self-regulated learning (Nicol and Macfarlane-Dick, 2006). In 2008, Shute developed guidelines for formative

feedback, showing that both feedback given immediately after a learner has completed a task and ‘delayed feedback’, given some time after the completion of task or test, can be beneficial for different types of learners.

**Conclusions:** The context and the way feedback is provided by edtech must be carefully considered to ensure it has a motivating outcome.

## 03 Using edtech to motivate learning

**It is possible for edtech to give immediate, automated responses to students’ work – for example, using a set of model answers (Sharples et al., 2012-13).**

Edtech may also respond to a learner’s performance and progress over time, particularly in relation to their peers. This may motivate them in the same way that computer games can. Such methods should be used with caution, however, as “they cannot provide the precision or the insight of a human response and there is a danger that giving continual feedback will channel a student into continually adjusting

performance to match the response, rather than planning and then engaging in a fluent piece of work” (Sharples et al., 2012, p.13). In 2017, Ogan and her colleagues explored ways of providing teaching assistants in higher education with fast, accurate feedback on their own classroom performance in order to help them learn. They found that introducing brief but frequent messages, giving suggested teaching strategies, led to greater levels of self-efficacy.

**Conclusions:** Technology can provide learners with ‘interactive walk-throughs’ that model good performance (Sharples, 2012).