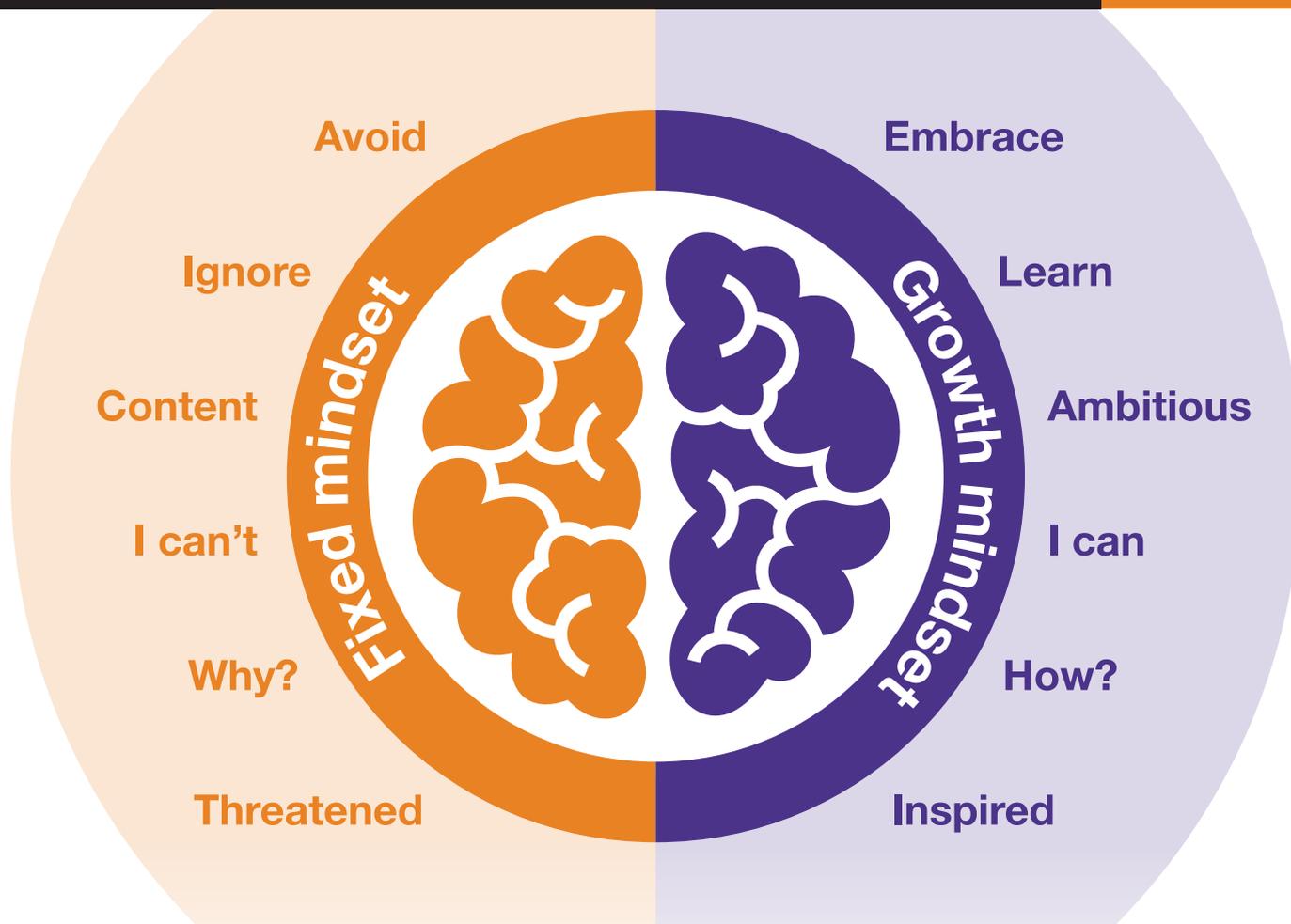


# Byte-sized edtech research



## How can understanding mindset improve educational technology?



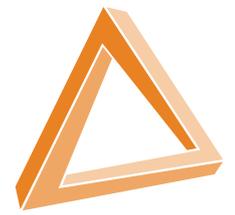
- People with a 'fixed mindset' believe their intelligence is inherent and cannot change.
- People with a 'growth mindset' believe their intelligence can be developed through effort and perseverance.

- A student's mindset is critical to their approach to problem-solving and learning.
- Teaching tools, including educational technology (edtech) should encourage effort and support students to use effective problem-solving approaches.

- Growth mindset interventions can be most beneficial for learners, particularly those at risk of educational disadvantage.
- Edtech can be designed to support a growth mindset, celebrating progress while offering reassurance and peer mentoring.

“In a fixed mindset, students believe their abilities are fixed. They have a certain amount and that’s that. In a growth mindset, students understand that through effort, good teaching and persistence everyone can get smarter.”  
Dweck, 2012

“The brain [is] a muscle that needs exercise. If students do not lift heavy weights their brain cannot grow.”  
Kazakoff and Mitchell, 2017



## 01 ‘Fixed’ vs ‘growth’ mindsets

**The psychologist Carol Dweck argues that people view their own intelligence in these two ways.**

Dweck proposes that people either have a “fixed mindset”, believing that their intelligence is inherent and cannot change, or they have a “growth mindset”, believing their abilities can be developed through effort and perseverance. A student’s

mindset is critical to their approach to problem-solving and challenge, and is therefore a key consideration in designing educational technology (edtech) products.

**Conclusions:** It is important to consider students’ mindset when designing edtech to enhance efficacy and impact.

## 02 Mindset strategies in education

**Mueller and Dweck (1998) observed that students who were praised for their intelligence, where this was presented as a finite and static entity, were less likely to persist, perform well and enjoy a task than students who were praised for their effort, which is an ongoing state.**

This supports the view from Blackwell and colleagues (2007) that students with a growth mindset are more motivated to

take on challenges and learn. Growth mindset strategies are therefore more useful in learning interactions.

**Conclusions:** Learners should be praised for their effort, not their finite intelligence and outcomes. Teachers and teaching tools should support students to think differently, take on challenges and use problem-solving approaches (Yeager and Dweck, 2012).

## 03 Measuring the impact of growth mindset interventions

**Kearney (2018) reviewed growth mindset interventions to establish whether or not they improved students’ academic attainment.**

Paunesku and colleagues (2015) found that growth mindset interventions, even if they are very short, can have a positive impact on learning performance. Further, these were shown to be of most benefit to students with a low-grade point average

or those who had failed at least one core subject. In two other studies (Blackwell et al., 2007; Yeager et al., 2014), all participants were described as low-achieving students.

**Conclusions:** Kearney concluded that the evidence on growth mindset interventions “suggests that they are effective at raising attainment for pupils at risk of educational disadvantage” (2018, p.18).

## 04 Developing edtech to nurture a growth mindset

**Kazakoff and Mitchell (2017) outlined the features of edtech that they believe help promote a growth mindset.**

These features include: giving learners choice over their learning path and opportunities to take risks; giving learners feedback on ongoing effort; keeping a record of a learner’s activities; providing personalised material that challenges and

engages; ensuring that individuals can practice new skills, if necessary with teacher support; and fostering supportive classrooms and school-to-home connections.

**Conclusions:** Edtech can provide a platform for students to talk about progress and celebrate successes, while offering reassurance and peer mentoring. Edtech can provide interventions to nurture growth mindset.