

RESEARCH BRIEF

Growth mindset thinking and beliefs in teaching and learning

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Introduction

This policy paper presents findings from a wide range of literature on growth mindset in primary and secondary education. Part 1 of the full paper describes key insights from research on growth mindset. Part 2 presents promising practices to improving students' growth mindset beliefs and thinking. Part 3 provides recommendations for IB stakeholders, meant to strengthen and reinforce the IB programme's potential to facilitate student growth mindset thinking across contexts.

This research brief, which was extracted from the full paper, highlights high-level findings. To learn more, please refer to the full policy paper.



What is growth mindset?

Every person carries a mindset, or implicit view, about the nature and origin of their own ability, and the ability of others. Mindset beliefs and thinking exist on a continuum, ranging from *fixed* mindset at one end to *growth* mindset at the other end. Students holding a *fixed* mindset, or entity beliefs, about their ability and the ability of others believe that intelligence and abilities are innate and unalterable. Students with a *growth* mindset, or incremental theories, believe that intelligence and abilities are malleable and can be developed with effort. However, students rarely hold one mindset, exclusively, in all circumstances. They typically exhibit a moderate mindset, where they may hold beliefs that fit into some aspects of a fixed mindset and some aspects of growth mindset, depending on the context and skill area (Dweck, 2006).

Why does growth mindset matter in education?

Students interpret their environment through the lens of their beliefs and perceptions. Students' beliefs are shaped by their experiences and by cues they receive through their interactions with others around them—parents, teachers, coaches, mentors, and peers. Students' beliefs about intelligence can lead them to interpret day-to-day classroom experiences as either threatening and indicative of a deficit in ability (fixed mindset) or exciting and indicative of a potential for development (growth mindset).

What does the research say about mindset theory?

Mindset theory suggests that implicit beliefs about intelligence play a critical role in academic achievement; however, the link between growth mindset and academic achievement has been

mixed. The mixed findings illustrate how the beliefs we carry, even those that may be unsupported by facts, are powerful, sensitive to context, triggered by circumstances and others, and often stubborn and difficult to change. Notable findings about growth mindset include:

- **Mindset and academic achievement:** Growth mindset beliefs have been found to predict higher academic achievement in a number of studies; however, meta-analytic research has found a weak relationship between growth mindset and academic achievement. This weak relationship may be due to few interventions meeting the accepted standards for rigor required to show an impact on achievement.
- **Benefits of growth mindsets:** Some evidence suggests growth mindset can have a positive effect on students beyond academic achievement, including more positive attitudes towards school, higher academic confidence and psychological well-being, increased motivation and school engagement, and higher academic resilience and persistence.
- **Mindset across student groups:** The relationship between growth mindset and achievement has been examined and supported for key student groups, including students with disabilities, gifted students, and students from marginalized socioeconomic backgrounds. Results suggest academically at-risk students and economically disadvantaged students may benefit most from growth mindset interventions.
- **Mindset across developmental periods:** Mindset theory has not linked the onset of implicit beliefs to a specific developmental period, some research suggests that mindsets are particularly influential during challenging academic transitions, such as from primary into middle grades and throughout adolescence.
- **Mindset across global contexts:** Studies have demonstrated a positive relationship between mindset and academic achievement in a number of countries, including Australia, China, Chile, England, Norway, Turkey, South Africa, and the U.S. Further, recent PISA results support the idea that students' growth mindset resulted in better academic performance, with only 4 out of 70 participating education systems showing no relationship or a negative relationship between growth mindset and academic performance.

How do growth mindset, metacognition, and academic resilience work together?

Given the recent increase in attention around social and emotional learning in education, the IB commissioned three policy papers focused on key interrelated social and emotional learning topics that are most closely aligned to the work of IB: metacognition, growth mindset, and academic resilience. Research illustrates how these three factors work together in teaching and learning. Failure, setbacks, and mistakes are a natural and inevitable aspect of school and academic learning. Adaptive responses to the stress of setbacks draw on growth mindset thinking about ability, the metacognitive knowledge and skills to make adjustments and be strategic, and the academic resilience to persevere with confidence, composure, and control.

Metacognition skills may be critical for learners to implement a growth mindset when stressed and to manage emotions when failure makes them want to quit. When teachers message and model a growth mindset in the face of setbacks in their own learning, they illustrate a self-regulatory process that underpins the academic resilience students need in their own lives. Recognizing one's fixed mindset dialogue and adjusting to make room for growth mindset thinking is a metacognitive process that sets the stage for academic resilience. Goal-setting and consistent reflection on progress toward those goals are also important metacognitive processes that influence growth mindset and, in turn, academic resilience. Goals emphasize the link between effort, strategy, and progress in learning. Reciprocally, mindset beliefs and thinking will influence how teachers and students use metacognitive knowledge and skills. It is important to understand how these three factors of growth mindset, metacognition, and academic resilience interact in typical academic experiences across grade levels and content areas. They do not function in isolation.

What policies, practices, and programs support growth mindset?

Approaches to facilitating growth mindset thinking and beliefs vary widely from large-scale government policies and international education programs to discrete classroom practices. This brief covers policies, practices, and programs developed in K–12 education around the world to support growth mindset development in students and the educational stakeholders that support them. Although the direct effects of policy on the growth mindset of teachers and students has not been studied, examples of philanthropic organizations, research centers, education agencies, and specific schools are described to illustrate implementation of initiatives to support growth mindset development in students. The importance of establishing grading and testing policies that support growth mindset is also covered. Additionally, specific promising practices are explored for school

leaders, teachers, families, and students. These examples provide concrete actions that can be taken to facilitate growth mindset in students. Finally, four effective programs are described to highlight characteristics of effective growth mindset interventions:

- **Brainology:** Mindset Works Brainology and SchoolKit support growth mindset development of school staff and students.
- **Changing mindsets:** The Changing Mindsets program in the UK focuses on both teachers and students and demonstrated modest gains in student academic performance.
- **World Bank's growth mindset program:** Online growth mindset training for South African students improved attitudes toward learning and academic performance.
- **Denmark's reading intervention:** A parent growth mindset intervention in Denmark improved student reading abilities, particularly among students whose parents had held fixed mindsets.

Given that growth mindset has largely developed through research with Western cultures, the policies, practices, and programs reviewed here are heavily influenced by Western culture and may not be received in the same way when implemented with other cultures. As such, it is important to consider cultural norms and expectations and inquire within your own school whether adaptations are needed to the presented policies, practices, and programs to be successful in your particular context.

What do we recommend for IB stakeholders?

This section presents recommendations for IB, educators (school leaders and teachers), and parents and students interested in integrating growth mindset thinking and beliefs in their personal and professional lives. It is important to recognize that growth mindset, as a concept, can be somewhat controversial. However, the recommendations provided here, while directed at improving growth mindset, also may improve similar skills (e.g., self-efficacy, attribution, goal orientation, locus of control) and are generally considered best practices in education.

Recommendations for the IB organization

The IB has a number of supports in place for facilitating growth mindset in school leaders, teachers, and students. These recommendations are intended to strengthen and reinforce growth mindset beliefs and thinking into programme curricula by making it explicit. However, whether IB wants to specifically frame these recommendations as directed at improving growth mindset or incorporate the recommendations more broadly, as promising practices for social and emotional learning, is less important than whether they are implemented.

- **Recommendation 1:** Consider explicitly incorporating growth mindset beliefs and thinking in IB's Approaches to Learning
- **Recommendation 2:** Consider directly embedding growth mindset modeling and messaging into IB programme resources
- **Recommendation 3:** Provide guidance for schools to develop a school culture that supports growth mindset beliefs and thinking
- **Recommendation 4:** Provide a compendium of growth mindset professional learning opportunities and resources for school leaders and teachers
- **Recommendation 5:** Consider providing resources for parents

Recommendations for IB school leaders and teachers

School leaders and teachers are at the heart of facilitating growth mindset thinking in their students. In many instances, school leaders and teachers may already be engaged in activities that support growth mindset thinking. These recommendations are intended to refine and strengthen existing processes and practices, as well as introduce some new processes and practices that school leaders and teachers may consider to more explicitly address growth mindset beliefs and thinking.

- **Recommendation 6:** Consider cultural norms and expectations prior to implementing a growth mindset initiative
- **Recommendation 7:** Consider a systems approach for growth mindset initiatives
- **Recommendation 8:** Build a school culture and classroom environment that supports growth mindset thinking
- **Recommendation 9:** Model growth mindset behavior and language
- **Recommendation 10:** Consider explicitly teaching students about the brain

Conclusion

Even with mixed research findings, growth mindset has been widely accepted by educators, incorporated in educational policies, and implemented emphatically in classrooms across the world with students of all ages. Although future research is needed on the effects of systematic growth mindset interventions, there appears to be some evidence that, when implemented correctly, growth mindset interventions can have meaningful effects on teachers, parents, and students. However, these effects may not have a lasting impact. Given

Recommendations for IB parents

Parents establish the foundations for student mindsets. Thus, it is important for parents to foster growth mindset beliefs and thinking in their children from a young age. Parents should consider whether these approaches align with their specific parenting styles and whether these strategies would work with their individual child's personality.

- **Recommendation 11:** Model growth mindset behavior and language

Recommendations for IB students

Although students receive messages about their abilities from others, students are ultimately responsible for which messages they accept and for changing their thought processes.

- **Recommendation 12:** Identify fixed mindset triggers and respond with growth mindset thinking and actions



the complex nature of growth mindset and the competing sources of information that shape students' mindset beliefs, it is unrealistic to expect a single growth mindset intervention to result in enormous shifts in student beliefs about their intelligence or their academic achievement, especially if nothing else changes in the school and classroom environment. However, consistent and comprehensive efforts across the community of support for students could result in substantial, long-term benefits and sustained effects over time.

This research brief was extracted from the full policy paper. A copy of the full paper is available at: www.ibo.org/en/research/. For more information on this study or other IB research, please email research@ibo.org.

To cite the full policy paper, please use the following: Jacovidis, JN, Anderson, RC, Beach, PT and Chadwick, KL. 2020. *Growth mindset thinking and beliefs in teaching and learning*. Bethesda, MD, USA. International Baccalaureate Organization.