THRIVING IN CHALLENGE: HOW STUDENTS' MOTIVATIONAL BELIEFS INFLUENCE THEIR **SELF-REGULATION DURING A CHALLENGE TASK**

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ABSTRACT. Why is that when faced with challenges, some students thrive while others do not? To explore this question, students' motivational beliefs were examined in relation to their performance after completing a challenging task alongside a same age peer.

BACKGROUND. During the learning process, frustration can be a significant obstacle for students – particularly in a classroom, when their peers may solve a problem with more perceived ease (J. J. Seta, Seta, & Donaldson, 1991). The processes and beliefs that enable students to control their thoughts and actions to achieve personal goals are referred to as self-regulation (Zimmerman, 2008). Dweck and Molden (2006) posit that the implicit theories individuals

METHODS



CHALLENGE TASK

EXPERIMENTAL SETUP. Students (N = 64) participated in pairs. One student was given an easy puzzle and the other was given a very challenging puzzle to complete. After working on the puzzle for 10 minutes, students answered questions about their experience and completed a measure of their self-control. Students were not made aware of differences in the difficulty of the puzzle task.

RESEARCH QUESTION. Do individual differences in motivational beliefs moderate the influence of frustration, experience, and self-control?



DEMOGRAPHICS (N = 64)

57%

Participant	Sex
Participant	Age

Response rate

Spoken Language at school Ethnicity

Primary Language spoken at home

(132 distributed, 75 returned) 24 Male, 40 Female 11-13 years (Mean Age = 12.41)63% French Immersion; 37% English 78% Canadian/European; 13% Other; 8% No response 93% English; 5% Other; 1% No response

• MOTIVATIONAL BELIEFS

FIXED VS. GROWTH MINDSET. Students' motivational beliefs, labelled as either a fixed or growth mindset, were measured using the *Implicit* Theories of Intelligence Scale for Children-Self Form (Dweck, 2000), prior to completing the challenge task. Students with a fixed mindset view their abilities as unable to change and tend to avoid difficult or challenging tasks, whereas those with a growth mindset view their abilities as capable of changing and tend to seek out challenges as learning opportunities.

In the present study, 31 students were given the easy puzzle and 33 were given the challenging puzzle. The current findings examine the influence of students' motivational beliefs for those in the challenging puzzle condition.

Fixed

Mindset

n = 15

Growth

Mindset

n = 18

Motivational Belief



INTRODUCTION

have about their abilities, either a fixed or growth mindset, may mediate their use of self-regulatory strategies. This study examined how students' motivational beliefs influenced their self-regulation during a challenging and potentially frustrating task with opportunities for social comparison. More specifically, this study examined the influence of students' implicit theories on the depletion of their self-control.

RESULTS

EMOTIONS

FRUSTRATION. Students' emotional response to the challenging task was measured using observations of their facial/body negativity and self-reported level of frustration. Findings suggest that students with a fixed and growth mindset experienced similar levels of frustration.*



^{*}No significant difference, t(31) = 1.55(.132), .899 (.375), respectively.

SELF-REGULATION. In the current study, self-control was used as an objective indicator of the influence of students' motivational beliefs on students' self-regulation. The present findings provide insights into the complex processes that occurs when students self-regulate towards a self-relevant goal – capturing key aspects of self-regulation: motivational beliefs, emotions, metacognition, and cognitive resources.

METACOGNITION

EXPERIENCE. Students' feelings and thoughts were obtained through a poststudy questionnaire. Findings suggest that students with a fixed mindset experienced maladaptive self-thoughts and feelings during the challenging task. Student examples are provided below.



SELF-CONTROL. Students' self-control was measured using Inhibition Accuracy on the D-KEFS Color-Word interference test (Delis, Kaplan, & Kramer, 2001). Findings suggest that students with a fixed mindset demonstrated significantly greater selfcontrol depletion than students with a growth mindset.**





IMPLICATIONS & FUTURE RESEARCH



Current results emphasize the need for practitioners to be informed about the influence of students' motivational beliefs, emotions, and social comparison.

Current findings suggest that, although students may become frustrated when faced with challenges, it is their motivational beliefs about their abilities, in particular about their intelligence, that help them overcome their challenges. Fortunately, these motivational beliefs can be taught and shaped through messages that teachers or schools communicate to their students. Through gaining a better understanding of the mechanisms used during adaptive and maladaptive functioning, practitioners and researchers can develop better ways to support students. Ultimately, a better understanding and operationalization of the problem can lead to better solutions.

FUTURE RESEARCH

While the current study made use of multiple sources of data in order to inform the study findings, areas for future exploration were identified:

- Replication of study procedures in a classroom environment in order to account for upward and downward social comparison.
- Replication with a larger sample size, taking into consideration a number of individual difference factors need to be considered (i.e., age, gender, bilingualism, upward/downward social comparison, and sampling distribution).
- Use of the study's novel experimental procedures to map the brain areas activated when students face a challenging task alongside a more successful peer in order to further explore the influence of frustration and motivational beliefs.

"In the fixed mindset, when you fail; you are a failure. In the growth mindset, when you fail; you are learning."

- Carol Dweck

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