Theories of Motivation to Support the Needs of All Learners

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Abstract

The increasing number of students requiring special education support is a plea for students to be taught the way they learn best. Through the authentic educational experiences of a diverse family, this paper explores the impact of theories of motivation to support all learners. This exploration proposes that educators may be able to support the needs of all learners in inclusive classrooms by integrating the theories of self-efficacy, self-determination, and implicit theories of intelligence.

Background

In Ontario, approximately 17% of elementary school students and 27% of secondary school students are receiving special education support through the implementation of an Individual Education Plan (IEP) (People for Education, 2019). An IEP is "A written plan describing the special education program and/or services required by a particular student, based on a thorough assessment of the student's strengths and needs that affect the student's ability to learn and demonstrate learning" (TDSB, 2020, p. 24). Approximately half of the students with an IEP in Ontario have not been formally diagnosed with a disability, but have an IEP so that teachers will be obligated to provide them with the support they need and teach them the way they learn best. Why not support all learners the way they learn best? Instead of creating IEPs to ensure students' needs fit the curriculum, maybe teachers should start by identifying the learning needs, strengths, interests, and motivational tendencies of all students and adapt the curriculum to the learner instead of the other way around. "Learning of all kinds goes on best, and lasts best, when it grows out of a real focus of interest in the learner" (Rogers cited in Grabau, 2017). Rogers (1980) believed that students who learned through their strengths and interests were naturally engaged and motivated to learn.

This theoretical inquiry explores the impact of students' motivation in multiple learning environments. Based on a critical constructivist perspective, we explore the authentic educational journeys of a diverse family: mother (Black), her son (Black with autism), and her daughter (Asian with anxiety), and the barriers they encountered in satisfying their distinctive learning needs. We start with a reflection of the influences of Dewey's and Rogers' theories on the mother's education and then further examine the impact of three contemporary theories: self-efficacy (Bandura), self-determination (Deci and Ryan), and implicit theories of intelligence (Dweck) on the educational journeys of the family.

Mom's Learning Through Experience

> My initial passion for education was ignited as an adolescent in grade 10, after convincing my parents that an environment outside the traditional classroom was essential for my social and emotional development. My transition to the first alternative school in my community in the 1970s opened my eyes to 'real' learning where the automaticity of good grades for good behaviour was disrupted when I received my first grade ever below 80%. The expectation was to construct my own learning through the mastery of real experiences, such as an interview with author Margaret Atwood for an English assignment. Biweekly one-on-one teacher-student consultations replaced traditional structured classrooms, advancing self-directed learning and socially constructed experiences. (Link to Mom's Audio)

Perceived as progressive at the time, this alternative school setting aligned with John Dewey's pragmatic philosophy that knowledge is socially constructed, and learning occurs through experience. The alternative school resembled Dewey's Laboratory School in Chicago, which reflected a process of creative enquiry, collaborative discussions, and the focus on students' interests (Provenzoi, 1979). However, unlike the alternative school which highlighted self-directed learning, Dewey (1899) believed that teachers still played a prominent role in delivery of the content. This did not mean the role of the student was any less; in fact, Dewey encouraged student participation in the process of learning, making choices, and goal setting.

Humanistic theorist Carl Rogers (1969) agreed with many of Dewey's philosophies, but Rogers was a strong promoter of self-directed learning where a greater responsibility of the learning was placed on the student. Rogers' (1980) humanistic theory encouraged teachers to be facilitators, allowing students to be active learners and giving them the choice of what and how they wanted to learn, whereas Dewey activated learners by focusing on the concept of learning through experience. Rogers (1969) illustrated that self-directed learning through the use of mutually negotiated contracts could provide students with flexible options for learning without absolving teachers of their responsibilities. The humanistic theory focused on educating the whole person, which Rogers (1980) described as bringing together cognitive learning with affective-experiential learning, so the learner's full potential could be achieved. In a documentary with Dr. Whitely (1972), Rogers expressed that sometimes students are unable to relate to freedom of education as he recalled a student once saying, "I always thought education was what I had to do before I could do what I wanted to do" (21:11m).

Rogers' educational philosophies more closely aligned with Mom's alternative school experience than did Dewey's approach. Similar to Dewey and Rogers, Mom believes that knowledge is constructed through experience, and growth is stimulated through student-centered educational approaches. However, as a critical constructivist researcher, in addition to identifying the issues that have an impact on learning, Mom also aims to demolish the barriers leading to inclusive education within the classrooms, schools, and broader educational contexts.

Introducing the Family

Expanding on the humanistic concept of educating the whole person, and understanding the strengths and interests of each learner, we introduce the rest of the family.

Matt

I am a creative, philosophical thinker whose learning differences conflicted with the instructional frameworks in the traditional public school settings. I prefer expressing myself through music so I created a simple rap to introduce myself.

> Yo, my name is Matt and I love to rap.
> I can rhyme which keeps me on track
> Some people thought that I was smart
> Because I had a really warm heart
> Others thought I was dumb
> So I was bullied by some
> Some people thought I was funny too
> It gave me the strength to know what I want to do
> So I used this strength to become a clown
> This helped me deal with my ups and downs
> Soon I accepted it was how I learn
> That's when I decided to make a turn
> So instead I figured out what I do best
> This helped me succeed when I had a test
> Now I'm on a journey to help others too
> But it's not always easy to do
> When my drum students jump all over the place
> It works really well when I stay on pace
> I know how it feels to be understood
> So music and teaching is what I do good. (Link to rap audio)

Molly

I am a well-rounded, diligent learner able to adapt to varying educational environments. I start the introduction of my journey by sharing a podcast I developed for a school project.

> My name is Molly and I was born in Fuzhou, China, a smaller city on the southeastern coast of the East China Sea. I was actually abandoned and dropped off in front of a store when only a couple days old, where the store owner found me and brought me to the local orphanage. From there I spent about a year with a foster mom, until I was adopted at one year old by my family who flew out from Canada to China to meet me. As for learning, I have always set high expectations for myself and worked hard to achieve my goals. Sometimes I would wrestle with my mental anxiety as a result. I have wondered if this disposition is related to my biological Asian heritage despite my upbringing in a tri-racial family. I will reflect on how my experiences have influenced my future outlook as I prepare for my transition to university. (Link to audio file)

Contemporary Motivational Theories Influence on Education

Our unique educational experiences were affected by our motivational dispositions, so we now explore these implications by considering contemporary motivational theories which expanded on Dewey's and Rogers' philosophies of holistic education and learning through experiences. Three theories which complemented these perspectives were: self-efficacy, self-determination, and implicit theories of intelligence.

Self-Efficacy Theory

Albert Bandura (Albert, 2017), a Canadian-American psychologist, was the founder of social cognitive theory and the theoretical construct of self-efficacy, a key component of motivation in learning. According to social cognitive theory (Bandura, 1997), specific self-efficacy is based on the level of task difficulty and the certainty of successfully performing a specific task. Self-efficacy theory proposes the level of self-efficacy is based on four major sources of information: performance accomplishment, vicarious experience, verbal persuasion, and physiological states (Bandura, 1997). Performance accomplishment focuses on the personal mastery of experiences where successes of previous experiences raise mastery expectations and failures lower them. Vicarious experiences relate to a person's perception of their ability to perform a task after observing others performing a similar task. Verbal persuasion is the feedback provided to a person to reassure them they can accomplish a specific task. Physiological state is an emotional arousal elicited by anxiety and vulnerabilities to stressful situations which affect the level of self-efficacy, depending on how this emotional state is controlled (Bandura, 1997; Block et al., 2010).

Self-Determination Theory

The second theory, self-determination theory (SDT), was developed by Edward Deci and Richard Ryan and expands on self-efficacy. According to Deci et al. (1991), unlike self-efficacy theory, which focuses only on the direction of behavior that leads to the outcome, self-determination theory addresses both the direction and the reason for certain outcomes. SDT postulates that three basic psychological needs are essential to drive motivation: competency, autonomy, and relatedness. Competency concerns the feeling of mastery and self-efficacy that is satisfied through challenging tasks, feedback, and well-structured environments. Autonomy involves self-initiation and self-regulation of one's own actions and is triggered by intrinsic experiences of interest and value. Relatedness involves satisfying connections that stem from feelings of belonging and caring (Deci et al., 1991; Ryan & Deci, 2020). SDT suggests that social contexts that support these basic psychological needs promote intentional action or intrinsic motivation, rather than external motivations derived from rewards and avoidance of punishments. As a result, SDT demonstrates the relationship of different outcomes based on a continuum of motivation levels ranging from amotivation, to four forms of extrinsic motivation and intrinsic motivation. Although we touch on several components of SDT, the focus will be on competence, autonomy, relatedness, the autonomous motivations related to extrinsic motivation, and intrinsic motivation as highlighted in Figure 1.

Implicit Theories of Intelligence

The third theory founded by Carol Dweck is implicit theories of intelligence, which is often referred to as growth mindset versus fixed mindset. Figure 1 depicts a resemblance between fixed mindset and SDT's controlled motives; and growth mindset with SDT's autonomous and intrinsic motivations.
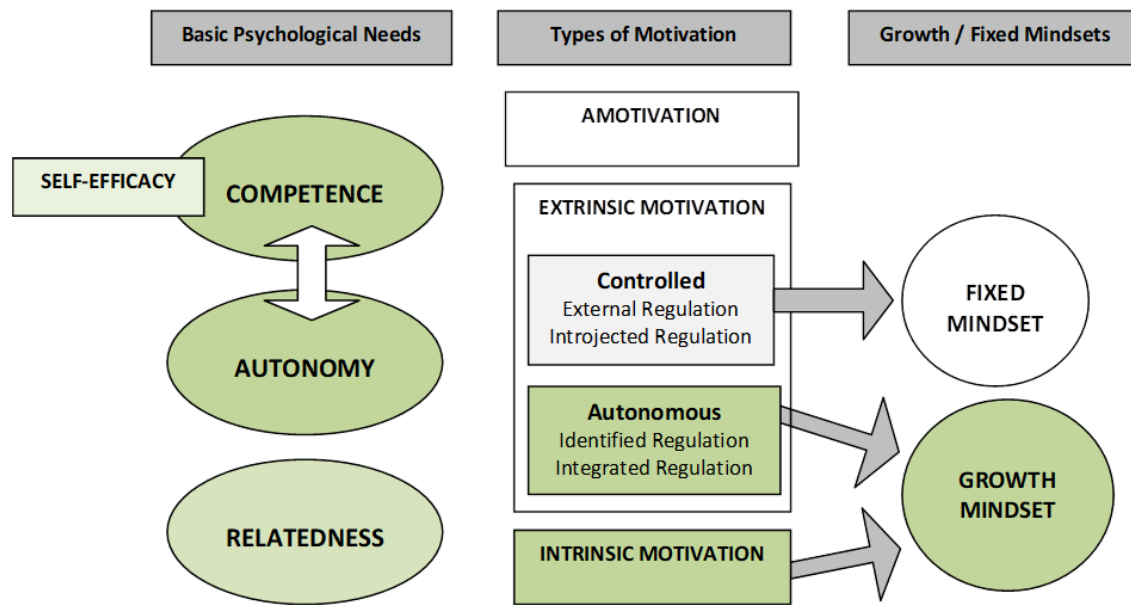
Fig. 1: Connections between motivational theories.

The growth and fixed mindsets propose that individuals can be placed on a continuum depending on their implicit beliefs of where their ability comes from. According to Dweck (2016), "The view you adopt for yourself profoundly affects the way you lead your life" (p. 6). Those who believe their abilities are innate and cannot be changed are presumed to have a fixed mindset, and those who believe their development is based on the effort they exert are said to have a growth mindset. Individuals with a fixed mindset are always seeking validation and feel the need to prove themselves as they want to always appear smart. In contrast, those with a growth mindset want to improve and master their abilities so exhibit mastery-oriented versus helplessness behaviour when they face setbacks (Dweck & Yeager, 2019).

Dweck and colleagues have conducted numerous studies to support these theories (Dweck, 2016; Dweck & Yeager, 2019; Yeager & Dweck, 2020). When students believed their abilities could be developed, they approached challenging assignments differently; they viewed failure as a growth experience, and they were motivated to try harder on tests and evaluations. On the contrary, those with fixed mindsets tended to run away from challenges as they may associate high effort with low ability level. Based on her research findings, Dweck suggests a variety of methods for encouraging a growth mindset, a few include: setting learning goals instead of performance goals, praising for efforts (process praise) rather than praising for intelligence (person praise), considering instructional strategies which highlight the learning/process-oriented versus performance/person-oriented practices, and having teachers model their own belief in the student's ability to grow (Dweck, 2016; Haimovitz & Dweck, 2017; RSA, 2013). Even if a student has a growth mindset, the application of their efforts may be negatively affected in the classroom when teachers have a fixed mindset or do not believe in the student's abilities to develop beyond their current level of achievement. Although Dweck builds professional

development to understand the impact of students' and teachers' growth mindsets, there is more to learn in relation to the teacher's role in stimulating growth mindsets within their students.

Each of these three theories have distinguishing features relating to students' motivation to learn, which ultimately affects students' acquisition and retention of knowledge. Therefore, we believe that in order to meet the needs of all learners in the classroom, it is insufficient to consider one single theory or one single instructional strategy; it is the integration of all three contemporary theories which may provide a practical new framework to support teachers' practices. We now turn to factors which connect the theories.

In order to understand a student's motivation to learn, we need to first examine their motivational tendencies by identifying their levels of self-efficacy and perceived competence and determining how these translate into intrinsic or extrinsic motivation, which lead to a fixed or growth mindset. Therefore, we focus on three themes among the early and contemporary theories that drive different types of motivation.

1. Influences of self-efficacy, perceived competence, and autonomy on motivation.
2. Mastery experiences and performance outcomes related to intrinsic and extrinsic motivation.
3. Meaningful feedback by praising for effort instead of praising for intelligence.

Influences of Self-Efficacy on Motivation

A student's initial motivation to learn is influenced by several aspects including self-efficacy in their abilities to perform a specific or multiple tasks. Bandura suggested this requires an internal belief in oneself and the opportunity to experience successful achievements (Bandura, 1997). Since previous experiences are a key factor of self-efficacy, students with special education needs have been found to have low self-efficacy because of repeated academic failure (Rhew et al., 2018). Bandura believed that verbal persuasion or validation from others may increase this self-efficacy. However, Dweck (2009) stipulated the type of feedback was also important. She proposed that praise from others can increase self-efficacy as long as students are praised for their efforts of overcoming challenging tasks, rather than only being praised for performance outcomes. Rogers also believed that teachers needed to be authentically caring and empathic in order to build trusting relationships with students (Whitely, 1972). These elements of the humanistic and self-efficacy theories constituted Matt's first experience of learning at the Montessori school he attended at age three.

Matt's Initial Experience at school

> I was stimulated by the melodic echoes from my teacher when she welcomed us to class each day during the attendance ritual of singing out the names of each student. When she got to me, she would sing, "Matthew, are you here right now" and I had to sing back, "Yes, I am and I'm ready to work." She also made it safe to fail with her encouraging words if I was unable to perform a task. When I reflect on my earliest memories of school, this student-centered approach always comes to mind and I wonder if it has any relevance to my current passion in music.

The Montessori Method of learning aligns with the humanistic theory; the focus is on the student from the moment they walk into the classroom. The teacher's goal is to provide a safe and caring environment where students are not afraid to make mistakes. Rogers reminded teachers in his interview with Dr. Whitely (1972) that "it's okay to make mistakes, let teachers create a climate so there is discussion of failures to learn" (31:00 min).

Although my initial school experiences were rarely replicated in the public school system, I do recall instances when teachers found ways to support my self-efficacy and competence levels once they understood me as an individual learner.

Influences of Competence, Autonomy and Relatedness on Motivation

Self-efficacy and competence have distinct differences as Ryan and Deci (2000) state that self-efficacy focuses on the level of behavior, whereas perceived competence is unlikely to be associated with behavioral outcomes unless the need for autonomy is also met. In order to trigger intrinsic motivation, one must believe they have the ability (perceived competence) and internal desire (autonomy) to complete the task (Rodgers et al., 2014; Ryan, 1982). SDT also proposes a sense of security and relatedness drive intrinsic motivation (Ryan & Deci, 2000). If a person is in any way influenced by external factors in their decision to complete the task, the behavior is no longer autonomous or self-determined (Deci et al., 1991). Molly's transitions through the optional French immersion programs at her school affected her perceived competence and relatedness often leading to extrinsic instead of intrinsic motivation.

Molly's Experiences with Languages

After I came to Canada, Mom enrolled me in Mandarin lessons in order to maintain some of my Chinese culture. I found it difficult adopting the language, especially when I was the only one in the family learning Mandarin, so the lessons were paused at my request. However, Mom pursued the quest for exposure to another language and streamed me into the French immersion program in senior kindergarten. Although I tried my best to keep up with the class, learning French at five years old was hard. Other than the basics, I didn't really understand anything the teacher was saying so I just pretended by nodding my head as I tried to mimic the actions of my peers. Once my teacher and parents realized that French immersion was not the best fit for me at that time, my parents transitioned me back to the English stream until grade six at which time I made the decision to move back to an extended French program. I interpreted my initial transition from French back to English as a failure as all my friends were still taking French. When I realized how easy English was compared to French, I felt I was missing a challenge, so I started inflicting expectations on myself to always maintain high grades. I wonder now if I was just creating my own stereotypes of what I thought others expected of me because I was Asian, as I always wanted to appear smart. I think I was extrinsically motivated because I was more worried about the perceptions of others than considering my own interests and values first. I wondered if the reasons for my disposition were related to my tribulations during infancy. Although I did not grow up in China, my perspectives resembled those of students from China where an association was found between fixed mindset and "fear of failure" (Yeager & Dweck, 2020). I am not clear whether my goals were based on 'focused achievement,' where a person does not want to appear unintelligent in front of others or 'normative achievement' with the natural desire to do well in school (Yeager & Dweck, 2020).

Dweck states that if a person is extrinsically motivated, they are likely to have a fixed mindset, but SDT claims there are different levels of extrinsic motivation which are controlled or autonomous (Dweck, 2016; Ryan & Deci, 2020). Therefore, we need to deepen our understanding of the SDT continuum of types of motivation, which is illustrated in Figure 1. On one end of the continuum is amotivation, which is a complete lack of motivation compared to intrinsic motivation where tasks are completed out of pure enjoyment and interest without any expected rewards or reinforcement (Deci & Ryan, 1985; Ryan & Deci, 2020). In the center lies extrinsic motivation, which is regulated in four ways through external, introjected, identified, and integrated forms of regulation (Ryan & Deci, 2020). The identified and integrated forms of regulation are categorized as autonomous motives because although some are affected by external factors, the intention is to accomplish for self rather than for others. On the contrary, external and introjected forms of regulation are referred to as controlling motives solely based on expectation of reward, or avoidance of punishment and the need for approval or validation (Ryan & Deci, 2020).

Based on these SDT definitions, Mom believes that Molly's motives fall between introjected and identified forms of regulation because of Molly's desire for security, acceptance, and approval while possessing strong personal values to succeed based on self-inflicted expectations. We next examine how mastery of experiences affects motivation.

Intrinsic Motivation Through Mastery of Experiences

Mastery of experience can increase self-efficacy, and enhance perceived competency (Ryan & Deci, 2000; Ryan, 1982; Deci & Ryan, 1985). Providing opportunities to master experiences can also move behaviors from extrinsically to intrinsically motivated actions. However, students also need to be ready to master their experiences. If students are compelled to perform actions before they are developmentally ready to master them, their motives may remain externally regulated or introjected (Ryan & Deci, 2000). Matt's initial experiences with oral and written communication demonstrate how perceived competency and limited opportunities for mastery affected his motivation.

Matt's Experiences With Oral and Written Communication

> When I transitioned to the public school board in grade one, my motivation in school plummeted when I was forced to adapt to a standardized curriculum that didn't consider my learning differences. Despite a diagnosis of dysgraphia, I recalled countless hours of being pressured to write my thoughts on paper. I couldn't understand why I was unable to express my thoughts orally or through music, which came naturally to me. When I did have the opportunity to talk but I did not respond fast enough, I was accused of not listening when I was simply processing my thoughts. My initial joy of learning from my Montessori days was squashed and then most academic tasks started to seem insurmountable.

> Was I really incapable? Was this my low perceived competence, or was it the teacher's low perceived competence of me, or both? The teacher seemed to be portraying the characteristics of a fixed mindset as she judged my ability based on an assumption that I was deliberately not meeting her expectations without having a holistic picture of me. It would be difficult for the teacher to provide opportunities to master my experiences when she was not even aware of my strengths or interests or what motivated me to succeed.

Dewey proposed that teaching should begin at the student's readiness level, and that prior experiences and interests should be promoted and woven into the curriculum (Feinberg, 2014). Rogers iterated an example of transitioning a student to mastery in his interview with Dr. Whitely.

> Instead of forcing a student to agonize over writing when they aren't ready then lose interest, Rogers suggested the teacher encourage the student to tell his story to the teacher or the whole class while the teacher scribes for him. Then when the other students get excited about the story, the student will be motivated to start writing on his own. Small doses of programmed learning when the student is ready. (Whitely & Cohen, 1972, 37 min.)

King and Watson's (2010) research on teaching excellence further proposed that teachers are accountable for developing a student's own belief in their potential to succeed. This is especially important for students with learning disabilities. According to Deci et al. (1992), encouraging competence in students with learning disabilities positively affected their motivation to learn as competence is associated with achievement. In fact, some students with mental delays sought pleasure from challenging tasks. However, Dweck (1999) stated that an overemphasis on performance goals may also hinder students' progress if students feel they are unable to meet the teacher's expectations.

Mastery of experience is sometimes interchanged with achievement-based performance outcomes, but these are distinctive concepts. In Dweck's work on achievement goal theory, achievement-based performance (performance goals) was intended to prove one's ability, whereas the objective of mastery of experiences (learning goals) was to develop or improve one's ability. The beginning of Dweck's work on growth mindset stemmed from the realization that, "the ability that people wish to 'prove' (fixed mindset) had a different feel to it than the ability that people wish to 'improve' (growth mindset)" (Dweck & Yeager, 2019, p. 483). Therefore, the growth mindset was derived from a mastery-orientation as opposed to an achievement-based philosophy. This perspective also aligned with the SDT continuum of motivation, which would suggest that those with a growth mindset also inhibit some level of autonomous extrinsic motivation or intrinsic motivation as illustrated in Figure 1.

In addition to considering a student's motivation in attaining their goals, Dweck's research also distinguished the differences of providing feedback by praising for efforts based on how hard an individual works to achieve a goal, rather than praising for intelligence or the actual outcome or grade level achieved (Dweck, 2016).

Providing Meaningful Feedback and Praising for Effort

Haimovitz and Dweck's (2017) review of research on practices that instill a growth mindset evidenced the importance of the process of learning. Students who were praised for intelligence viewed intelligence as a fixed trait regardless of their efforts. If they achieved high grades with little or no effort, they may believe they have mastered the learning, when, in fact, this may not be the case. Alternatively, when they encountered obstacles or failure, these students with a fixed mindset may believe they are incapable of improving. According to Dweck (2016), when a student is facing test-taking anxiety, it may be more damaging for parents and teachers to reassure students about their intelligence when trying to build a student's confidence by saying, "Look, you know how smart you are and we know how smart you are.

You've got this nailed, now stop worrying" (p. 183). This type of statement just puts more pressure on students for fear of disappointing those who may expect more of them.

However, when the process was highlighted, students who were praised for their efforts believed their abilities could be improved through hard work or specific strategies. Test scores and measures of achievement tell you where a student is, but they don't tell you where a student could end up" (Dweck, 2016, p. 66). Dweck (2016) believes that a growth mindset is developed when praising both the effort and outcome and the goal should also have value to the student.

When this distinction between praise for intelligence and praise for effort is not fully understood, the outcome may become more relevant to the teacher or parent than to the learner or child.

During Matt's educational journey, grades did not mean much to him, so he usually exerted little effort to attain high grades, but for Molly, grades meant everything and she worked very hard to achieve high grades. Based on Dweck's theories of intelligence, if grades came naturally to Molly without the effort, she may be presumed to have a fixed mindset and since Matt was not motivated to put in the effort, the presumption may also be that he has a fixed mindset. But are these assumptions true? There is more to be considered about these profiles before we can automatically assume these labels. Therefore, we look at an example from each of Matt's and Molly's grade 12 experiences in preparation for their postsecondary journeys to explore the possibilities.

Matt's grade 12 experience

> Since most of the courses I selected in grade 12 were of interest to me, my grades were much higher in grade 12 than previous years and by the middle of the year, my grade average was about 80%. It wasn't until Mom told me that if I continue to maintain this average, I could obtain an Ontario Scholar achievement award, so I started exerting a little more effort than usual. Initially, I was motivated to achieve the goal, primarily because of my mom's belief in my abilities, but after I met the goal and obtained the certificate of achievement, it didn't seem that relevant as so many others were also awarded the same certificate. Reflecting back, my biggest regret about grade 12 was switching from the academic English course in a classroom with a very challenging teacher to the applied English course in an online setting which was almost too easy. Grade 12 English was a required course to graduate high school; the academic English course was required for university and the applied English course meant the only option was college. Up until grade 12, I had met all the academic course requirements to go to university, but I was unable to receive the support I needed from the academic English teacher. So, I had to either risk failing the academic course and not graduate at all or take an easier course that also helped me achieve the Ontario Scholar recognition, which ironically in the end really did not mean much.

> Although Mom's intention was in the right place to help me succeed, she was actually promoting a fixed rather than a growth mindset in me. I think at the time my brain wasn't fully developed so I did everything based on extrinsic motivation, but I am now realizing how rejuvenating it is to do things that I want to do and that are good for me, so I guess my brain is now fully developed. Growth mindsets are developed by encouraging individuals to master experiences, not by forcing upon them achievement-based performance goals. Therefore, it is also important that students are intrinsically motivated to attain their own goals, rather than the goals of others.

Molly's grade 12 experience

The majority of my high school was completed during the COVID-19 pandemic, which meant the environments included online, in-person, and hybrid, combining online with in-person settings. It also meant taking eight, four, or two courses at a time with different levels of intensity. There were no exams during this entire period which will likely create more challenges for me in university. Although at the time it was nice not having exams, the stress of achieving super high grades in grade 12 for competitive university programs really took its toll on me with my level of anxiety going through the roof on numerous occasions. Some teachers indicated they wanted to prepare us for university by experimenting with different test taking strategies, but the focus was on grades rather than the process to retain the information, study for the test, and actually take the test. It did not help when teachers would tell me not to worry because I already had high grades. This was not the type of support I needed when in one course my grades ranged from 65 to 95% because of the state of my anxiety when completing timed tests. It was not until other students and I voiced our concerns to the guidance counselors and the Vice Principal that student support started becoming more important than teacher driven test-taking experiments, which were clearly not working.

Matt and Molly's experiences indicate that students with and without learning differences possess a wide range of learning needs. The needs are not always apparent so teachers must be willing to look beyond achievement-based performance and consider the efforts of students, intrinsic and external motivations, value of goals, and environmental factors to really determine if mastery-based learning is occurring. However, teachers also faced challenges in fulfilling these obligations. In Deci's et al. (1991) research on factors affecting motivation and education, they found that the degree to which teachers are autonomy supportive versus controlling had an impact on students' motivation and self-determination. Teachers who felt pressured by administrators to ensure students were performing to a certain standard, or experienced pressures from parent groups, or other external forces outside the school system, were more controlling of their students. The controlling behavior of teachers negatively affected students' self-determination and motivation to learn. However, when teachers were autonomy supportive, they adopted a student-centered approach that began with understanding the child's motivational tendencies and identifying ways to foster engagement. Deci et al. (1991) suggested this includes promoting self-determination by "offering choice, minimizing controls, acknowledging feelings, and making available information that is needed for decision making and for performing the target task" (p. 342).

Yeager and Dweck (2020) also highlighted the role teachers play in developing students' mindsets, but believed there was more research to be done to understand which teacher practices promote students' growth mindsets, and how to address teachers' mindsets about themselves and their students. They also recognized that changing teacher behavior through professional development alone can be challenging. Therefore, Yeager and Dweck's recommendation was to first focus on students' growth mindset with evidence-based interventions and support teachers in administering these interventions to their students. The hope was that teachers would see the benefits in having a growth mindset through their students and want to develop their own mindsets.

In her book *Mindset*, Dweck (2016) described the mindset of Dorothy DeLay, a teacher from the Juilliard School of Music. DeLay was unlike the other teachers who automatically weeded out students when the teachers did not automatically see talent and did not want to bother with the students. DeLay expressed

that, "If students didn't play in tune, it was because they hadn't learned how" (p. 199). She intimated that it was the teachers' role to teach everyone, but unfortunately teachers with fixed mindsets may not want to waste their time on students who they believe are born with certain abilities or talent that cannot be changed. A growth mindset teacher from one of the worst high schools in Los Angeles reflected on how to teach students with learning challenges by asking himself, "How can I teach them?" not "Can I teach them?" and "How can they learn best?" not "Can they learn?" (p. 64).

Concluding Remarks

The journeys of Mom, Matt, and Molly have illustrated benefits and challenges of varying learning environments and instructional strategies. Their experiences also imply it may be difficult to determine which students have a fixed or growth mindset, or are intrinsically or extrinsically motivated to learn. A combination of theories may need to be considered. The climb to developing growth mindsets may seem unconquerable for teachers with a fixed mindset. However, Mom says this is not an impossible target, as she shares an observation of Matt and Molly in each of their own first teaching experiences:

> As I passed the dining room table, I overheard Molly tutoring her grade two student; she exclaimed "wow, that was amazing. I can see how much you practiced and how far you have come along. You should be really proud of yourself." And then as I approached the basement, I heard Matt energetically modelling and then simplifying a fancy drum roll with a student, who was once a challenge to keep focused. Matt told me his secret was building relationships through the student's interests.

If Matt and Molly, with no previous teaching experience, can have such an impact on their students, just imagine what can be accomplished with ongoing research and the development of growth mindsets in students as well as teachers.

Instead of creating more IEPs that compel teachers to implement strategies which benefit only one learner at a time, maybe when teachers identify the strengths, interests, and motivational tendencies of all learners, they will be able to design instructional practices that benefit all learners in inclusive classrooms.

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