

MOTIVATION TO LEARN

What Motivates Students to Learn? Applications for All Classroom Levels

Amber Perrell, Julia Erdie, and Theresa Kasay

University of North Carolina at Charlotte

The Deans for Impact (DFI) (2015) report posed the question "What motivates students to learn?". This article examines strategies and interventions for each of the four cognitive principles presented in the report. Within this paper, applications of the cognitive principles will be discussed at the elementary, secondary and postsecondary levels. The techniques recommended in reference to belief about intelligence include collective goal writing, focus on ability to overcome setbacks, and reinforcing a growth mindset. Techniques for self-determined motivation reviewed include Project Based Learning, creating academic competition, and the use of letter grades in college courses. As teachers encourage students' ability to monitor their own learning, this article reviews Socratic Seminar techniques, Question Answer Relationships, and reflective writing methods as possible strategies. Finally, this article includes interventions to reinforce belonging and acceptance through Writer's Workshops, the wise feedback technique, and creating social-norming related to struggles with fitting in.

Keywords: Student Motivation, Intrinsic Motivation, Extrinsic Motivation, Incentives, Cognitive Science, Metacognition, Memory, Growth Mindset, Social Support Groups, Elementary Schools, Secondary Education, College, Higher Education, Intervention, Motivation Techniques

In classrooms across the country, teachers consistently search for strategies to motivate students. The Deans for Impact (DFI) (2015) report recommends strategies to motivate student learning through cognitive principles. The cognitive principles outlined in the DFI (2015) report about motivation include "beliefs about intelligence are important predictors of student behavior in school, self-determined motivation (a consequence of values or pure interest) leads to better long-term outcomes than controlled motivation (a consequence of reward/punishment or perceptions of self-worth), the ability to monitor their own thinking can help students identify what they do and do not know, but people are often unable to accurately judge their own learning and understanding, students will be more motivated and successful in academic environments when they believe that they belong and are accepted in those environments" (Deans for Impact, 2015 p. 7). Within this paper, the strategies associated with the four cognitive principles will be discussed through application techniques for elementary, secondary and postsecondary classrooms.

BELIEFS ABOUT INTELLIGENCE ARE IMPORTANT PREDICTORS OF BEHAVIOR

The DFI report (2015) states beliefs about intelligence are significant in predicting student behaviors and motivation in school. Dweck's (2006) Mindset Theory is the foundation of this cognitive principle. The research explores the role of incremental theory and entity theory as it relates to a student's belief about intelligence (Blackwell, Trzesniewski, & Dweck, 2007). The entity theory suggests intelligence is fixed; therefore, intellectual abilities cannot be changed and the fixed mindset is described as "believing your qualities are carved in stone" (Dweck, 2006, p. 5; Park & Kim, 2015). When students received praise for their intellectual ability after successes, the students developed the belief that intelligence is fixed and showed distress when faced with an achievement setback (Mueller & Dweck, 1998). The incremental theorists believe intelligence is malleable and with more effort one can increase their intelligence (Park & Kim, 2015). This growth mindset is "the belief that your basic qualities are things you can cultivate through your efforts." (Dweck, 2006, p. 6). Children who received praise on effort or strategy were less likely to experience helpless reactions when faced with a setback (Kamins & Dweck, 1999). The findings in the literature are likely to facilitate the question "how do I apply this research to the learning environment?" among educators. Therefore, practical applications for educators will be discussed in the areas of elementary, secondary and postsecondary.

In an elementary classroom, students' beliefs about intelligence are impacted by classroom structures and goal setting. Collective versus competitive goal writing for elementary students has a positive impact on student achievement by increasing their motivation and engagement, thus improving reading comprehension (Dweck, Walton, & Cohen, 2014). In collective goal writing, the classroom teacher meets with each student pairing to write a collective reading comprehension goal. As the students read together to accomplish that goal, the collective process results in a collaborative approach which reinforces beliefs about intelligence and encourages the students to motivate each other's learning (Dweck et al., 2014). "Students' higher-order or long-term goals - or purposes - contribute to their engagement and tenacity" (Dweck et al., 2014, p. 10).

When a secondary teacher creates lessons using the growth mindset, they create a classroom where students feel successful and motivated to learn. One application of this principle is developing teaching strategies that reinforce ability to overcome setbacks. For instance, consider an English teacher with high expectations who requires her students to not only learn vocabulary definitions, but apply the words at a higher cognitive level. This concept may be difficult for some students, therefore the teacher holds one on one conferences with her students in order to target the discrepancies and provide support to the students. This strategy supports the finding that students praised for hard work appear to avoid achievement setbacks (Mueller & Dweck, 1998). Providing clear study strategies to the individual student creates a learning environment that promotes the growth mindset.

In higher education, this principle can be applied by reinforcing the growth mindset during the challenging first year of college. The first year is a key time to reinforce growth mindset strategies as it is a time when many college students face setbacks and higher expectations. An example of the practical application is a fixed versus growth mindset workshop with college students (Dweck, 2006). As part of the workshop, students write letters to K-12 students reinforcing the growth mindset after learning about the theory (Aronson, Fried, & Good, 2002). This intervention was shown to be particularly impactful on the students' own attitudes

about intelligence (Aronson et al., 2002). Although the workshop may seem a very literal application, it is valuable in several ways. The focused workshop helps to reinforce the student's ability to change and to grow at a time when they are facing challenges (Dweck, 2006; Park & Kim, 2015). Furthermore, the workshop takes a concept that has been discussed by teachers in theoretical frameworks and lets the students begin to explore the theory, the research supporting the theory, and to understand the value for themselves. The letter writing intervention also provides the students with an opportunity to apply the theory and concept in order to reinforce their own perceptions (Aronson et al., 2002).

Self-Determined Motivation Leads to Better Long-Term Outcomes

The DFI (2015) report recommends teachers utilize their classrooms to control the “factors related to reward or praise that influence student motivation” (p. 7). Through the review of literature, evidence supported various applications of the intrinsic and extrinsic reward system. First, researchers recommended the use of tangible rewards to motivate students when the reward is unexpected and immediate (Deci, Koestner, & Ryan, 1999; Eisenberger, Pierce, & Cameron, 1999; Levitt, List, Neckermann, & Sadoff, 2012). Tangible rewards were also found to be particularly effective for standardized testing or assignments where students have little or no intrinsic motivation (Bettinger, 2012). Additionally, praise contingent on high quality performance is recommended as a way to encourage self-determined motivation (Conroy, Sutherland, Snyder & Marsh, 2008). The key element in the research for both verbal and tangible rewards to increase self-determined motivation is the importance of the context of the delivery of rewards to reinforce student learning (Deans for Impact, 2015; Deci et al., 1999; Eisenberger et al., 1999; Levitt et al., 2012)

Intrinsic motivation for elementary students can be seen when students have the self-control and self-regulation to focus on and complete the classroom task - choosing the work over friends or classroom distractions (Dweck, Walton, & Cohen, 2014). In an elementary classroom, implementing the Project Based Learning model (Dewey, 1916; Larmer, Mergendoller, & Boss, 2015) allows students to lead their own research and learning by building student motivation, investment and engagement. In this model, each student has a role and is an integral part of learning (Larmer, 2015). The core tenants of Project Based Learning are: “(1) designing and/or creating a tangible product, performance or event; (2) solving a real-world problem (may be simulated or fully authentic) (3) investigating a topic or issue to develop an answer to an open-ended question” (Larmer, 2015, p. 2). As students work collaboratively in identifying the real-world problem, driving questions, research and published product, Project Based Learning fosters ownership of learning and student motivation.

Secondary students can be very competitive. Secondary teachers may apply this cognitive principle by collaborating with each other to create academic competitions with rewards (Bettinger, 2012). Collecting data and benchmark testing is on the rise in secondary schools. Teachers who share the same content can administer the benchmark exam and ask students to analyze their performance on the standards. Each class will determine the class proficiency by standards and the highest performing class wins the prize. Leading up to the benchmark exam, teacher will create lessons that facilitate individual student needs. The teachers may create a contract for each student that targets their individual needs based on the standards as determined by common formative assessments. This strategy supports Bettinger's

(2012) work that indicates tangible rewards are effective for increasing standardized testing and assignments.

In the post-secondary setting, application of this principle can be best seen in the use of the letter grades, as opposed to a pass-fail grading system, to support self-determined motivation. Jessup-Anger (2011) found that letter-grades provide increased student motivation as they reinforce the need for effort. Thus, to apply this principle university officials should reflect on how a pass-fail course impacts the intrinsic motivation of a student. By taking the same, pass-fail course and simply adding a letter-grade, research indicates the students will be more motivated to complete the same tasks (Jessup-Anger, 2011).

Ability to Monitor Their Own Thinking

The DFI (2015) report focuses on the importance of self-monitoring and metacognition, the act of thinking about thinking, as a vital component of student motivation and learning. In the DFI (2015) report and additional research from Karpicke, Butler, and Roediger (2009), the authors indicate that the practice of information retrieval affects the process of learning new information and monitoring that learning. The research also highlights the importance of self-regulation and self-regulated learning (Schunk, 2008). Koriat and Levy-Sadot (2001) study the concept of metamemory and model for knowing; practices of self-regulated learning. Furthermore, research on heuristics and feelings of knowing provide insight into the personal reflections and self-evaluation of learning and understanding (Koriat, 1993). Finally, the research cautions that while learners can successfully monitor their thinking, their self-awareness regarding the level of mastery of material can be flawed (Karpicke et al., 2009). “When students rely purely on their subjective experience while they study...they may fall prey to illusions of competence and believe they know the material better than they actually do” (Karpicke et al., 2009 p. 478). The DFI (2015) report outlines general strategies for learning and for monitoring learning. In this article, we offer additional practical applications for educators to use in the classroom.

While Socratic Seminar, a teaching method based on Socrates’ method of learning through questioning, can be effectively used in any classroom; the following is an example of how Socratic Seminar can foster metacognition (thinking about thinking) (Holden & Schmit, 2002; Tredway, 1995) in an elementary classroom. Through the structures of Socratic Seminar: 1) an assigned text as an instructional focus; 2) open ended questions facilitated by the teacher and students; 3) classroom discussion around the predetermined group norms and goal; 4) student refer to and cite content or verbiage from the text or primary document to support their thoughts, understandings or opinion (National Paideia Center, 2015). As a result, students experience increased understanding of the content, their thinking and others’ point of view through inquiry (Holden & Schmit, 2002)

This inquiry leads to new knowledge and understandings. For example, students in a 4th grade class use Socratic seminar to learn about the Declaration of Independence. Students will then discuss if the phrase “all men are created equal” was evidenced in the laws and actions developed by the founding fathers. Students must reference the primary document to cite text which supports their argument or opinion. By implementing Socratic Seminar techniques, teachers reinforce students’ evaluation of their own thinking and understandings.

Creating an environment in the secondary classroom where students have the ability to monitor their own thinking requires the teacher to establish strategies for students where they

learn the process. In content areas such as English, Social Studies and Science, students are required to read text in order to glean important information and use it for assignments, projects, and assessments. Using a strategy from Questioning as Thinking (QAT), particularly Question Answer Relationships (QAR), will provide students the knowledge of how to facilitate their learning through questions and answers (Raphael, 1986). Teachers must provide students with the instruction on the four question types in QAR, which are Right There questions, Think and Search questions, Author and Me questions, and On my Own questions (Wilson & Smetana, 2009). In the “Right There” questions, teachers must assure that student are able to find answers directly from the text. For “Think and Search”, students must be able to find main ideas, compare and contrast, and cause and effect from information in the text. When students use “Author and Me”, they must be able to infer or connect implications from the text. Furthermore, students must be able to answer questions solely based on their knowledge and not directly from the material in the text. A teacher may ask a question that begins with “From your experience”, which constructs the “On My Own” answer. When students are successful in navigating the QAR, they are creating a process in which they are able to monitor their own thinking.

At the college level, metacognition is an important part of the learning process and the ability for students to monitor their own thinking and learning. Thus, an application of this form of motivation is the use of questions to encourage deeper levels of thinking (Darling-Hammond, Austin, Cheung, & Martin, n.d.). In higher education, this can be done by asking students to reflect on their own understanding of the material. For an online course, this is often accomplished by asking students to post about their understanding of readings or course content in online forums. This allows the student to identify what they do know and allows the instructor to gauge whether the student’s explanation is consistent with mastery of the content (Akyol & Garrison, 2011; Darling-Hammond et al., n.d.). In the classroom, this reflection conversation can take place through class discussions or through reflective writing assignments (Giaquinto, 2010). Often reflective writing can be done through journaling that allows the student to process their own learning while still allowing the professor to ensure the student is still mastering the content (Giaquinto, 2010).

Belonging & Acceptance

Encouraging a sense of belonging and acceptance in the classroom is crucial for students to maintain motivation to learn. The DFI (2015) report recommends the use of the “wise” technique, in which educators provide critical feedback focused on high expectations, while specifically addressing confidence in the student’s abilities to reach those standards, and providing the resources to meet those expectations (Cohen, Steele, & Ross, 1999; Yeager, Walton, & Cohen, 2013; Yeager et al., 2014). Furthermore, the review of literature recommends interventions that focus on the sense of belonging as a psycho-emotional support system for students. These concepts are key foundations for the application of this principle.

In the elementary classroom, Writer’s Workshops, based on the research and structures of Calkins (1994), ends each writing session with an author’s sharing time. As Writer’s Workshop structures are established, sharing protocols provide a safe and supportive environment for students to share their writing with peers. As part of the sharing routine, a student reads aloud a piece of current writing. The student author receives feedback from their peers regarding the mini-lesson focus, observations, questions, and editing suggestions. There are multi-dimensional

outcomes from Writer's Workshop sharing which include: 1) building a sense of community among the writers in the classroom; 2) creating a culture that fosters thinking, reflecting, feedback and editing as a part of the writing and learning processes; 3) providing a platform for students to recognize the value and content of their work and other's work; 4) preparing a platform for students to orally present their work (Calkins, 1994). The sharing component of Writer's Workshop is integral and imperative to establish a writing environment that fosters student belonging and acceptance.

In the secondary school setting, providing feedback is crucial to students' success. By providing "wise" feedback a teacher will encourage the growth mindset and motivate students to work towards excellence (Yeager et al., 2013). When assigning projects or papers, a teacher may provide corrective feedback and require resubmissions by the students until the work is exemplary. When using wise feedback, the teacher should communicate to their students that exemplary work is expected and continuous feedback and support will be provided until the student's work meets that high expectation (Cohen et al., 1999). Furthermore, the high expectations are communicated as evidence that the teacher believes every student has the ability to meet the expectations (Cohen et al., 1999). The student will ultimately experience greater motivation, while learning how to meet the high expectations of the teacher. This feedback process is supported through the research of Cohen et al. (1999), Yeager et al. (2013), and Yeager et al. (2014).

One powerful recommendation in the literature for creating motivation was to develop social norming around the feelings of insecurity that most students experience during the first year of college (Cohen & Garcia, 2008; Morrow & Ackermann, 2012; Walton & Cohen, 2011). An application of this concept was best modeled in the work by Walton and Cohen (2011). In this research project, first-year students were exposed to survey results that indicated most upperclassmen students experienced insecurity about belonging and social setbacks at the university during their first year (Walton & Cohen, 2011). This intervention reinforced the idea that social adversity is a "common and transient aspect of the college-adjustment process" (Walton & Cohen, 2011 p. 1447). Thus to apply this research intervention to practical application, educators would have an upperclassmen peer share their own challenges and struggles with finding a social fit during their first year of college to reinforce the normality of these struggles. This type of intervention was shown to be correlated with higher GPA scores specifically for minority college students (Walton & Cohen, 2011).

CONCLUSION

After reviewing the literature associated with motivation and student learning, this article proposes and reflects on practical applications, strategies, and techniques that can be used at the elementary, secondary, and postsecondary levels to reinforce student motivation. With student learning and achievement as the main objective of all institutions of learning, motivation through reinforcing their belief in their own intelligence, strengthening self-determined motivation as well as considering extrinsic motivators, encouraging the ability to monitor their own thinking, and bolstering feelings of belonging and acceptance are supported by research as foundational elements for students in all learning environments (Deans of Impact, 2015).

REFERENCES

- Akoyl, Z., & Garrison, D. R. (2011). Assessing metacognition in an online community of inquiry. *Internet and Higher Education, 14*(3), 183-190.
- Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology, 38*(2), 113-125.
- Bettinger, E. P. (2012). Paying to learn: The effect of financial incentives on elementary school test scores. *The Review of Economics and Statistics, 94*(3), 686-698.
- Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007, January/February). Implicit theories of intelligence predict achievement across adolescent transition: A longitudinal study and an intervention. *Child Development, 78*(1), 246-263.
- Calkins, L. M. (1994). *The Art of Teaching Writing*. Portsmouth, NH: Heinemann.
- Cohen, G. L., & Garcia, J. (2008). Identity, belonging, and achievement: A model, interventions, implications. *Current Directions in Psychological Science, 17*(6), 365-369.
- Cohen, G. L., Steele, C. M., & Ross, L. D. (1999). The mentor's dilemma: Providing critical feedback across the racial divide. *Personality and Social Psychology Bulletin, 25*(10), 1302-1318.
- Conroy, M. A., Sutherland, K. S., Snyder, A. L., & Marsh, S. (2008). Classwide interventions: Effective instruction makes a difference. *Teaching: Exceptional Children, 40*(6), 24-20.
- Darling-Hammond, L., Austin, K., Cheung, M., & Martin, D. (n.d.). Thinking about thinking: Metacognition. *The Learning Classroom: Session 9*, 1-16. Retrieved from http://www.learner.org/courses/learningclassroom/support/09_metacog.pdf
- Deans for Impact. (2015). *The science of learning*. Austin, TX: Deans for Impact.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin, 125*(6), 627-668.
- Dewey, J. (1916). *Democracy and Education*. New York: Mcmillan.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York: Ballantine.
- Dweck, C. S., Walton, G. M., & Cohen, G. L. (2014). *Academic tenacity: Mindsets and skills that promote long-term learning*. Bill and Melinda Gates Foundation. Retrieved from <https://ed.stanford.edu/sites/default/files/manual/dweck-walton-cohen-2014.pdf>
- Eisenberger, R., Pierce, W. D., & Cameron, J. (1999). Effects of reward on intrinsic motivation - negative, neutral, and positive: Comment on Deci, Koestner, and Ryan (1999). *Psychological Bulletin, 125*(6), 677-691.
- Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54*(1), 5-12.
- Giaquinto, R. A. (2010). Instructional issues and retention of first-year students. *College Student Retention, 11*(2), 267-285.
- Holden, J., & Schmit, J. (2002). Inquiry and the literary text: Constructing discussions in the English classroom. Classroom practices in teaching English. *National Council of Teachers of English, 32*, 2-204.
- Jessup-Anger, J. E. (2011). What's the point? An exploration of students' motivation to learning a first-year seminar. *The Journal of General Education, 60*(2), 101-116.
- Kamins, M. L., & Dweck, C. S. (1999). Person versus process praise and criticism: Implications for contingent self-worth and coping. *Developmental Psychology, 35*(3), 835-847.
- Karpicke, J. D., Butler, A. C., & Roediger, H. L. (2009). Metacognitive strategies in student learning: Do students practise retrieval when they study on their own? *Memory, 17*(4), 471-479.
- Koriat, A. (1993). How do we know that we know? The accessibility model of the feeling of knowing. *Psychological Review, 100*(4), 609-639.
- Koriat, A., & Levy-Sadot, R. (2001). The combined contributions of the cue-familiarity and accessibility heuristics to feelings of knowing. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 27*(1), 34-53.
- Larmer, J., (2015). *Project-Based Learning vs. Problem-Based Learning vs. X-BL*. Retrieved from <http://www.edutopia.org/blog/pbl-vs-pbl-vs-xbl-john-larmer>.
- Larmer, J., Mergendoller, J., & Boss, S. (2015). *Setting the standard for project based learning*. Alexandria, VA: ASCD.
- Levitt, S. D., List, J. A., Neckermann, S., & Sadoff, S. (2012). The behavioralist goes to school: Leveraging behavioral economics to improve educational performance. *National Bureau of Economic Research, Working Paper 18165*, Retrieved from <http://www.nber.org/papers/w18165>.

- Morrow, J. A., & Ackermann, M. E. (2012). Intention to persist and retention of first-year students: The importance of motivation and sense of belonging. *College Student Journal, 46*(3), 483-491.
- Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology, 75*(1), 33-52.
- National Paideia Center. (2015). *How to teach a Socratic seminar*. Retrieved from <https://www.paideia.org/about-paideia/socratic-seminar/>.
- Park, D., & Kim, S. (2015). Time to move on? When entity theorists perform better than incremental theorists. *Personality and Social Psychology Bulletin, 41*(5), 736-748.
- Raphael, T. E. (1986). Teaching question and answer relationships, revisited. *The Reading Teacher, 39*(6), 516-522.
- Schunk, D. H. (2008). Metacognition, Self-Regulation, and Self-Regulated Learning: Research Recommendations. *Educational Psychology Review, 20*(4), 463-467.
- Tredway, L. (1995). Socratic Seminars: Engaging Students in Intellectual Discourse. *Educational Leadership, 53*(1), 26-29.
- Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science Magazine, 331*, 1447-1451.
- Wilson, N. S., & Smetana, L. (2009). Questioning as Thinking: A Metacognitive Framework. *Middle School Journal, 41*(2), 20-28.
- Yeager, D. S., Johnson, R., Spitzer, B. J., Trzesniewski, K. H., Powers, J., & Dweck, C. S. (2014). The far-reaching effects of believing people can change: Implicit theories of personality shape stress, health, and achievement during adolescence. *Journal of Personality and Social Psychology, 106*(6), 867-884.
- Yeager, D., Walton, G., & Cohen, G. L. (2013). Addressing achievement gaps with psychological interventions. *Kappan, 94*(5), 62-65.