

Teacher Guide

College and Career Competency: *Self-Efficacy*

Definition:

Self-efficacy refers to perceptions an individual has about his/her capabilities to perform at an expected level and achieve goals or milestones. It is shown to influence academic **motivation**, learning, and achievement (Pajares, 1996; Schunk & Pajares, 2001).

Essential Components for Students:

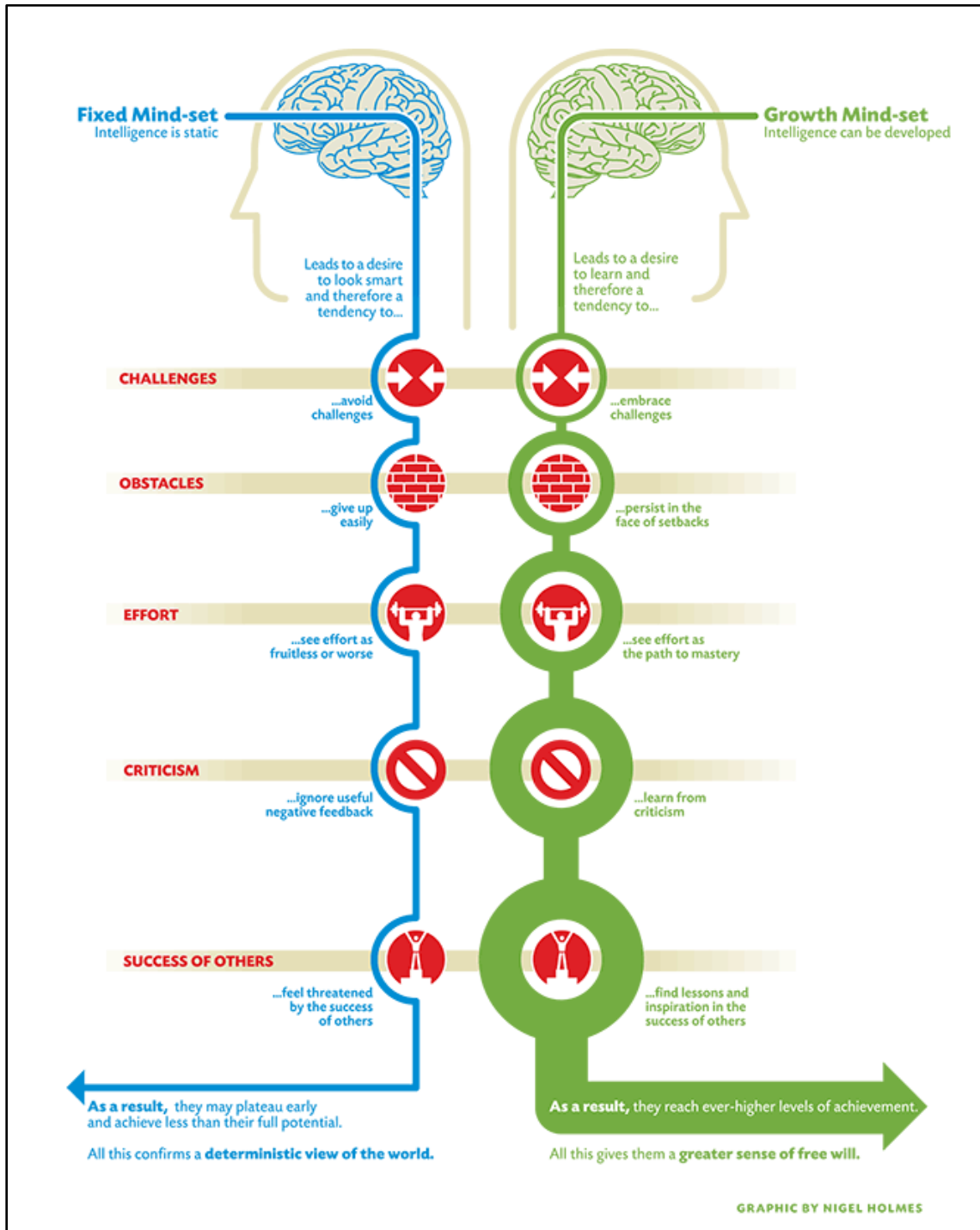
1. Self-efficacy increases with the belief that ability can grow with effort.
2. Believe in your ability to meet specific goals and/or expectations.

Research:

- Students with higher levels of self-efficacy will engage more, work harder, and persist longer when they encounter difficulties (Zimmerman, 2000).
- Academic self-efficacy, which is related to academic mindsets, is a student's confidence in his/her ability to successfully execute an academic task. Low academic self-efficacy can lead a student to give up early on a difficult task. Conversely, high academic self-efficacy can lead a student to willingly take on and persist with difficult tasks (Mercer, Nellis, Martinez, & Kirk, 2011; Schunk, 1985; Schunk & Pajares, 2001).
- Research shows that self-efficacy can predict academic achievement, use of appropriate social skills, rigorous course selection, challenging career choices, and exceptional athletic performance across age levels (Britner & Pajares, 2006; Schunk, 1991).
- Success in performing tasks increases self-efficacy, and failure lowers it; however, once strong self-efficacy is established, failure does not provide a setback (Schunk, 1991).
 - A student's initial self-efficacy, for example, when starting a new assignment, will be driven by the student's self-perceived ability, aptitude, and prior experiences. Progress toward goals signals to the student that he/she is becoming more skilled. This, combined with factors like teacher feedback, will impact performance, which in turn will increase self-efficacy, which enhances **motivation**, leading to a cycle of positive validation that supports continuous skill development (Schunk, 1991).
- Students develop self-efficacy based on inputs from four sources: 1) previous performance, 2) observing others performing tasks, 3) verbal and nonverbal judgments and feedback, and 4) their emotional state (e.g., anxious, nervous) (Britner & Pajares, 2006; Schunk & Pajares, 2001). Students will interpret and integrate inputs from these sources to form a belief about their capabilities.
- Similar to self-efficacy, Farrington et al. (2012) define academic mindsets as "beliefs, attitudes, or ways of perceiving oneself in relation to learning and intellectual work that support academic performance" (p. 28). Academic mindsets can be positive as well as negative. Positive academic mindsets can lead to improved academic performance by helping students **persevere** when tackling challenging problems and remain engaged in learning. As performance improves, positive mindsets are reinforced, leading to a positive mindset-building cycle. In contrast,

negative mindsets can lead to a self-repeating cycle of poor academic performance. Academic mindsets are reflected in statements like:

- I belong in this classroom/school.
 - My ability and competence grows with effort.
 - I can succeed at this task/assignment/challenge.
 - This work has value for me.
- The academic and learning outcomes that can be impacted by positive academic mindsets include increased use of applied **knowledge**; progress through school; and improved achievement, as measured by grades and test scores (Snipes, Fancsali, & Stoker, 2012).
 - A study of students in the 5th, 8th, and 11th grades showed that their perceptions of academic self-efficacy increased during junior high, despite declining self-perceptions of academic competence. Researchers explain this seeming contradiction by noting that perceptions of academic competence are based on comparisons to peers, whereas self-efficacy is an internal belief in capability. Therefore, they suggest that teachers use instructional practices that minimize social comparisons (Zimmerman & Martinez-Pons, 1990).
 - According to Britner & Pajares (2006), self-efficacy in science is associated with both achievement in science and science-related choices that students make across grade levels. “In science, students who have a strong belief that they can succeed in science tasks and activities will be more likely to select such tasks and activities, work hard to complete them successfully, **persevere** in the face of difficulties, and be guided by psychological indexes that promote confidence as they meet obstacles” (p. 486). If students work on a challenging task and experience success, they experience increased self-efficacy. Teachers can support self-efficacy by conveying to students that they are acquiring science skills and **knowledge** (Schunk, 1985).
 - Certain teaching practices can also lower students’ self-efficacy. Results from a three-year study of students in grades 2-4 suggest that certain classroom instructional practices, such as grouping students by ability, rewarding correct answers versus effort, and having high expectations of some children and low expectations of others, can impact how capable a child believes him- or herself to be, lowering self-efficacy (Hughes & Chen, 2011).
 - In research involving students of various mathematical abilities, it was shown that after controlling for ability, students who had higher self-efficacy solved more problems correctly (Schunk, 1985). The researchers also found that specific goals help develop self-efficacy because the student can gauge progress (Schunk, 1984).
 - “Learning environments that construe ability as an acquirable skill, deemphasize competitive social comparison, and highlight self-comparison of progress and personal accomplishments are well suited for building a sense of efficacy that promotes academic achievement” (Bandura, 1993, p. 125).
 - Individualized learning environments in which instruction is customized to students’ academic abilities and in which cooperation is emphasized over competition are more likely to increase academic self-efficacy (Pajares, 2006, p. 339). Emphasizing effort, rather than intelligence, encourages students to see ability as something that can be changed, and that accomplishment is the result of hard work.
 - As the diagram below shows, belief that intelligence can be developed leads to a desire to learn and a tendency to embrace challenge, persist in the face of setbacks, see effort as a path to mastery, learn from criticism, and find lessons and inspiration in the success of others. This results in ever-higher levels of achievement (Tomsett, 2013). Additional information is available at <http://johntomsett.com/2013/10/20/this-much-i-know-about-developing-a-dweck-inspired-growth-mindset-culture/>.



Assessments:

- The Self-Efficacy Questionnaire for Children (SEQ-C) is a reliable instrument designed for students in grades 8 to 12 (Muris, 2001). The 24 items are self-rated from 1 (not at all) to 5 (very well) to create composite scores in the domains of academic self-efficacy, social self-efficacy,

and emotional self-efficacy. The assessment is available at http://drjenina.net/wp-content/uploads/2013/07/self-efficacy_questionnaire.pdf. Sample questions for each domain of self-efficacy are listed below.

- How well can you study when there are other interesting things to do? (academic)
- How well can you express your opinions when other classmates disagree with you? (social)
- How well do you succeed in cheering yourself up when an unpleasant event has happened? (emotional)
- The Children’s Self-Efficacy Scale (Bandura, 2006) is designed for youth aged 10 to 15 and includes 22 items within three domains: self-efficacy in enlisting social resources, self-efficacy for academic achievement, and self-efficacy for **self-regulated** learning. Youth identify their level of confidence by writing a number between 0 (cannot do at all) and 100 (highly certain can do). The scale is available at www.strivetgether.org/sites/default/files/images/9%20Childrens%20Self-Efficacy%20Scale.pdf. Examples of questions in each domain are listed below.
 - Get a friend to help me when I have social problems (enlisting social resources)
 - Learn general mathematics (academic achievement)
 - Get myself to study when there are other interesting things to do (**self-regulated** learning)
- The Academic Efficacy subscale from Patterns of Adaptive Learning Scales (PALS) is a reliable measure of self-efficacy in a specific class (Midgley et al., 2000). It was designed for grades 3 through 9 and includes five questions rated on a Likert scale ranging from 1 (not at all true) to 5 (very true). The scale is available at www.strivetgether.org/sites/default/files/images/3%20PALS_Student%20Academic%20Efficacy%20subscale%20from%20Patterns%20of%20Adaptive%20Learning%20Scales.pdf. The items are:
 1. I’m certain I can master the skills taught in class this year.
 2. I’m certain I can figure out how to do the most difficult class work.
 3. I can do almost all the work in class if I don’t give up.
 4. Even if the work is hard, I can learn it.
 5. I can do even the hardest work in this class if I try.
- The Student Self-Report of Academic Self-Efficacy (Hoover-Dempsey & Sandler, 2005) is a three-item measure with items rated from 1 (not true) to 4 (very true) available at <http://www.strivetgether.org/sites/default/files/images/7%20Student%20Self-Report%20of%20Academic%20Self-Efficacy.pdf>. It was designed for students in grades 4 to 6. The items are:
 1. I can do even the hardest homework if I try.
 2. I can learn the things taught in school.
 3. I can figure out difficult homework.
- The College-Going Self-Efficacy Scale (Gibbons, 2005) is a reliable measure that was designed for middle school students regarding their perceived intent to attend and persist in college, available at www.strivetgether.org/sites/default/files/images/16%20College%20Going%20Self-Efficacy%20Scale.pdf. The 30 items are rated on a 4-point scale from ‘not at all sure’ to ‘very sure.’
Attendance items include:
 1. I can find a way to pay for college.
 2. I can choose a good college.
 3. I can choose the high school classes needed to get into a good college.

Items indicating intent to persist in college include:

1. I could get A's and B's in college.
2. I could fit in at college.
3. I would like being in college.

Instructional Strategies:

- The most successful interventions (in terms of statistically significant impact on academic outcomes) are those that emphasize that intelligence grows with effort (Snipes et al., 2012; Dweck, Walton, & Cohen, 2014). For example, offering students information on the physiology of the brain and emphasizing how the brain is like a muscle that grows more connections (i.e., gets stronger) when the individual works on a challenging task will reinforce the message that extra effort can produce successful outcomes. The Mindset Works intervention can be provided for a cost, online as well as through a workshop (see <http://www.mindsetworks.com/>).
 - Teachers can encourage this growth mindset by praising effort rather than ability.
 - Classroom strategies that encourage competition among peers can reinforce a fixed mindset about intelligence and performance (rather than emphasizing mastery **goals**), and thus lead to lower achievement by some students.
- Instructional strategies that lead to higher levels of self-efficacy include (Schunk, 1985):
 - Modeling the application of certain cognitive skills, such as explaining out loud how you solved a mathematics problem. It builds self-efficacy to describe “good” mistakes that show learning by explaining the learning demonstrated. See an example at <https://www.teachingchannel.org/videos/class-warm-up-routine>.
 - Having a peer model how she or he coped with solving a difficult problem, again by verbalizing the steps followed and discussing the outcome.
 - Training students in understanding and applying learning strategies. For example, in a remedial listening comprehension program, teachers modeled comprehension strategies, then had the students practice by verbalizing a strategy before they applied it to a question. The self-verbalization worked as a form of rehearsal, building students’ belief in their ability to complete the task independently.
 - Offering explicit performance feedback so that students’ attention is intentionally focused on the skills and **knowledge** they are acquiring. For example, conveying where the student is making progress is especially important when students are learning complex skills where they quickly learn some components but not others. Specific feedback by the teacher can highlight the correct components and help the student address the problem areas. The teacher feedback can be provided verbally or with charts. The most important thing is that the feedback be clear and timely.
- **Goal setting** is important to self-efficacy (Schunk, 1990; Schunk & Pajares, 2001). Self-set goals also lead to higher self-efficacy. Have students set short-term, specific, and challenging but attainable learning goals; provide feedback on goal progress and effort (Schunk & Pajares, 2001).
- Interventions that promote positive academic mindsets can be relatively brief but still have long-term effects. This is because the interventions affect the self-repeating processes that cause results to accumulate over time (Yeager & Walton, 2011). An example of a brief but effective intervention is having struggling students meet with older students to discuss challenges with academic success that they encountered while transitioning to a new environment (e.g., middle school to high school), and how they overcame the challenges and improved their grades. This helps the struggling students understand that poor performance is normal in a transition, that

poor grades do not reflect lack of ability, and that the grades can improve as the student adjusts to the new environment.

- Science teachers can apply several strategies to increase their students' science self-efficacy (Britner & Pajares, 2006):
 - Scaffold students' science development to ease the transition from textbook-based to laboratory-based science instruction.
 - Help students interpret their classroom experiences in a positive way.
 - Invite experts into the classroom to help model science skills and explain how failed experiments are an opportunity for new scientific insights.
 - Help students understand their emotions and work through anxiety.
- The *Responsive Classroom (RC)* is a social and emotional learning (SEL) intervention designed for elementary school students that was found to decrease students' anxiety and increase academic self-efficacy (Griggs, Rimm-Kaufman, Merritt, & Patton, 2013).
 - The RC approach consists of seven principles and 10 practices based on those principles. An example of a principle is, "The social curriculum is as important as the academic curriculum" (p. 362). This principle drives the practice of holding a morning meeting, which is a structured class meeting where students and teachers greet one another and share news.
 - "RC teachers are trained to understand and be sensitive to children's individual needs and to create well-organized classroom environments in which children feel safe taking academic risks" (p. 369).
- Other successful approaches to reinforcing positive academic mindsets include (Dweck et al., 2014):
 - Setting high standards that promote a growth mindset and learning goals:
 - Early intervention when difficulties arise (in school year, in transition) is important.
 - Teachers should avoid overpraising for mediocre work.
 - Standards must be perceived by the student as attainable.
 - For example, at the beginning of a school year, have students write down aspirational but specific **goals**, then help students break the goals down into concrete, short-term activities to accomplish the goals. This not only presents the student with a challenge, but also helps reinforce the importance of effort by providing a way to track progress.
 - Providing cognitive and motivational scaffolding:
 - Personalize high-quality feedback that includes encouragement to continue.
 - Support students to re-phrase self-criticism. Instead of saying, "I'm not good at this" say "I've learned this part, but I still need to work on this," (Dweck, 2006).
 - Support student autonomy through cues that emphasize good performance as a result of the student's effort. For example, using the word "might" versus "should" when presenting a new task can nurture autonomy by appearing less controlling to the student.
 - Support intrinsic **motivation** by emphasizing relevance of the activity to personal growth. For example, discuss how the activity that the student is undertaking directly supports the goal of getting a job, going to college, or contributing to the community.
 - Helping students feel connected and supported:
 - Provide one-on-one attention.
 - Express interest in the student's social/family environment.

- Establish small groups of peer learners who can work on problems as a community of learners. For example, intersperse questions during a lecture and then have students discuss the questions in a group until they arrive at the correct answer. By engaging with the students interactively, the teacher gains good feedback on their understanding of the material, and the students gain immediate feedback on their thought processes.

References

- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28(2), 117-148. Retrieved from http://www.tandfonline.com/doi/abs/10.1207/s15326985ep2802_3#.VkYrs-L75oM
- Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents*, (pp. 307-337). Greenwich, CT: Information Age Publishing. Retrieved from <http://www.uky.edu/~eushe2/BanduraPubs/BanduraGuide2006.pdf>
- Britner, S.L., & Pajares, F. (2006). Sources of science self-efficacy beliefs of middle school students. *Journal of Research in Science Teaching*, 43(5), 485-499. doi: 10.1002/tea.20131
- Dweck, C. (2006). How can you change from a fixed mindset to a growth mindset? Retrieved from <http://mindsetonline.com/changeyourmindset/firststeps/index.html>
- Dweck, C., Walton, G.M., & Cohen, G.L. (2014). Academic tenacity: Mindsets and skills that promote long-term learning. Seattle, WA: Bill and Melinda Gates Foundation. Retrieved from <http://collegeready.gatesfoundation.org/learning/academic-tenacity-mindsets-and-skills-that-promote-long-term-learning/>
- Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). Teaching adolescents to become learners: The role of noncognitive factors in shaping school performance - A critical literature review. Chicago: University of Chicago Consortium on Chicago School Research. Retrieved from <http://files.eric.ed.gov/fulltext/ED542543.pdf>
- Gibbons, M. (2005). College-going beliefs of prospective first-generation college students: Perceived barriers, social supports, self-efficacy, and outcome expectations. University of North Carolina at Greensboro. Retrieved from <http://libres.uncg.edu/ir/uncg/f/umi-uncg-1049.pdf>
- Griggs, M.S., Rimm-Kaufman, S.E., Merritt, E.G., & Patton, C.L. (2013). The Responsive Classroom approach and fifth grade students' math and science anxiety and self-efficacy. *School Psychology Quarterly*, 28(4), 360-373. doi: 10.1037/spq0000026
- Hoover-Dempsey, K.V., & Sandler, H.M. (2005). Final performance report for OERI Grant #R305T010673: The social context of parental involvement: A path to enhanced achievement. Project Monitor, Institute of Education Sciences, US Department of Education Project. Retrieved from <http://www.vanderbilt.edu/peabody/family-school/Reports.html>
- Hughes, J.N., & Chen, Q. (2011). Reciprocal effects of student-teacher and student-peer relatedness: Effects on academic self-efficacy. *Journal of Applied Developmental Psychology*, 32(5), 278-287. doi: 10.1016/j.appdev.2010.03.005
- Mercer, S.H., Nellis, L.M., Martinez, R.S., & Kirk, M. (2011). Supporting the students most in need: Academic self-efficacy and perceived teacher support in relation to within-year academic growth. *Journal of School Psychology*, 49(3), 323-338. doi: 10.1016/j.jsp.2011.03.006
- Midgley, C., Maehr, M.L., Huda, L.Z., Anderman, E., Anderman, L., Freeman, K.E., ... Urdan, T. (2000). Manual for the patterns of adaptive learning scales. Retrieved from http://www.umich.edu/~pals/PALS%202000_V12Word97.pdf
- Muris, P. (2001). A brief questionnaire for measuring self-efficacy in youths. *Journal of Psychopathology and Behavioral Assessment*, 23(3), 145-149.

- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66(4), 543-578. Retrieved from <http://www.jstor.org/stable/1170653>
- Pajares, F. (2006). Self-efficacy during childhood and adolescence: Implications for teachers and parents. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of Adolescents* (pp. 339-367). Greenwich, CT: Information Age Publishing. Retrieved from http://sites.education.uky.edu/motivation/files/2013/08/18464-Self-Efficacy_During_Childhood_and_Adolescence-Implications_for_Teachers_and_Parents.pdf
- Schunk, D.H. (1984). Children's social comparison and goal setting in achievement contexts. In L.G. Katz (Ed.), *Current Topics in Early Childhood Education* Vol. 6 (pp. 62-84). Norwood, NJ: Ablex.
- Schunk, D.H. (1985). Self-efficacy and classroom learning. *Psychology in the Schools*, 22(2), 208-223. Retrieved from http://libres.uncg.edu/ir/uncg/f/D_Schunk_Self_1985.pdf
- Schunk, D.H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist*, 25(1), 71-86. doi: 10.1207/s15326985ep2501_6
- Schunk, D.H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26(3-4), 207-231. Retrieved from <http://www.tandfonline.com/doi/abs/10.1080/00461520.1991.9653133#.VkYtuOL75oM>
- Schunk, D.H., & Pajares, F. (2001). The development of academic self-efficacy. In A. Wigfield & J. Eccles (Eds.), *Development of achievement motivation*. San Diego, CA: Academic Press. Retrieved from <http://www.uky.edu/~eushe2/Pajares/SchunkPajares2001.PDF>
- Snipes, J., Fancsali, C., & Stoker, G. (2012). Student academic mindset interventions: A review of the current landscape. San Francisco, CA: Stupski Foundation. Retrieved from <http://www.impaqint.com/work/project-reports/student-academic-mindset-interventions-review-current-landscape>
- Tomsett, J. (2013). This much I know about... developing a Dweck-inspired Growth Mindset culture. Retrieved from <http://johntomsett.com/2013/10/20/this-much-i-know-about-developing-a-dweck-inspired-growth-mindset-culture/>
- Yeager, D.S., & Walton, G.M. (2011). Social-psychological interventions in education: They're not magic. *Review of Educational Research*, 81(2), 267-301. doi: 10.3102/0034654311405999
- Zimmerman, B.J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82-91. doi: 10.1006/ceps.1999.1016
- Zimmerman, B.J., & Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology*, 82(1), 51-59. doi: 10.1037/0022-0663.82.1.51