Research Guide (Grades PreK–6)
College and Career Competency: *Self-Efficacy*

Definition

Self-efficacy refers to perceptions an individual has about their capabilities to perform at an expected level, achieve goals, and complete moderately challenging tasks (Noonan & Gaumer Erickson, 2018c, p. 23).

Essential Components for Students

1. Focus on your effort, progress, and learning.
2. Take steps to increase confidence in your abilities.

Strategies for Students

These strategies help students persist through challenging tasks and improve confidence in their abilities. The strategies are taught through instructional activities within the *Self-Efficacy Lessons [Primary, Intermediate, and Secondary]* (Noonan, Gaumer Erickson, Heger, & Haught, 2023).

1. Focus on my effort
2. Try again
3. Calm myself
4. Say, "I haven't learned _____ yet"
5. Exercise my brain
6. Learn from my mistakes
7. Remember hard things I've done
8. Give and accept praise
9. Accept feedback
10. Watch and learn from other

Competency Sequence for Students

These targets provide a developmental sequence (Noonan & Gaumer Erickson, 2018b). As described in the Assessments section, these targets can be used to determine students' growth over time through a performance-based observation process.

Self-Efficacy	
Developing	• Demonstrates an understanding that making mistakes is normal. • Continues work on a challenging task by trying different ways to solve a problem. • Demonstrates approaching a challenging task with recognition that ability grows with effort. • Describes mistakes as normal and as opportunities to learn. • Provides examples of growth mindset self-talk statements. • Describes some basic structures of the brain and understands that a brain can "grow" and change with practice.

© 2018 Amy Gaumer Erickson & Patricia Noonan

Emerging	• Explains the difference between a fixed mindset and a growth mindset. • Identifies times when their efficacy was strong and times when it was lacking. • Provides examples of how effort relates to accomplishing a challenging task and incorporates the concept to their own life. • Describes ways to increase self-confidence/belief in ability for various challenging tasks. • Demonstrates verbal persuasion and growth mindset self-talk. • Explains how our brain changes as it is challenged with new information (basics of neuroplasticity) and applies this to growth versus fixed mindsets.
Demonstrating	• Describes self-efficacy. • Describes relevant brain anatomy, such as how neural connections grow and change. • Self-assesses level of efficacy, effort, and amount of learning over time applied to specific tasks/knowledge. • Describes how ability can grow with effort in various situations. • Describes sources of efficacy, such as self-talk, previous victories and mastery experiences, emotional and physical signals, and vicarious experiences. • Utilizes mindful practices to self-calm and focus.
Generalizing	• Demonstrates an awareness of their level of efficacy for various challenging tasks. • Utilizes strategies from four sources of self-efficacy (mastery experiences, vicarious experiences, verbal persuasion, and physiological feedback).

Research

- For young children who haven't yet had the social or academic experiences to form accurate self-beliefs about capability, getting honest and supportive feedback from parents and teachers that helps build a positive self-concept is important for development, achievement, and social interactions (Myers-Walls et al., 2015).
- Lee and Jonson-Reid (2016) found in their study of urban students in Grades 1–3 that children with a highly developed sense of self-efficacy had significantly greater reading achievement. Task-specific self-efficacy, or the student's belief that it was possible to complete the task, has been found to have the largest impact on reading achievement.
- 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 their 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 et al., 2011; Schunk, 1985; Schunk & Pajares, 2001).
- A positive self-concept is important for school adjustment (Mantzicopoulos, 2006). Preschool-age children can bring a social mindset to school that encompasses positive self-regard and self-competence beliefs (Cvencek et al., 2016; McElroy, 2015).
- Goddard (2001) surveyed 452 teachers at 47 urban elementary schools in a large Midwestern district to examine the relationship between teacher self-efficacy and differences in school achievement. He found that teacher self-efficacy based on mastery experience was a significant

© 2018 Amy Gaumer Erickson & Patricia Noonan

predictor of a school's collective efficacy and, further, that collective efficacy was strongly related to differences in student performance between schools.

- Developmental research indicates that before middle childhood (ages 7–12), children have a limited capacity for judging their abilities accurately (Davis-Kean et al., 2009). Young children tend to overvalue their competence because they receive very positive feedback for efforts that are not necessarily related to individual accomplishment (Mantzicopoulos, 2006).
- There is "a meaningful link between students' beliefs in their ability to conform to the rules of writing and their writing self-regulation and success" (Zumbrunn et al., 2020, p. 580).
- In a study of students in Grades 4–8, researchers examined which sources of self-efficacy had the greatest impact in math and reading (Butz & Usher, 2015). Specifically, they surveyed students about these four sources: interpreting past experiences and performance (mastery), messages received from others (verbal/social persuasion), what they see others do (vicarious experience), and how they feel while doing or thinking about an activity (physiological and affective state). The researchers found that mastery and verbal/social persuasion were the most frequently reported sources of self-efficacy for math and reading in these grades.
- Researchers in France (Joët et al., 2011) examined sources of self-efficacy in mathematics and French (equivalent to English Language Arts) in a sample of 395 students in Grade 3. They concluded that interventions designed to raise student self-efficacy should target all four sources of self-efficacy (mastery experience, vicarious experience, verbal/social persuasion, and physiological and emotional states). Among the specific findings:
    - Girls in Grade 3 perceived fewer mastery experiences in math than boys did. The girls reported receiving fewer positive social messages about their performance in math than the boys did. Girls reported lower self-efficacy in math. In French class, there was no difference between boys and girls in terms of sources of self-efficacy.
    - There were no significant differences found based on classroom context; however, students in classes with higher average self-efficacy reported feeling more capable.
    - Perceived mastery experiences were the primary source of self-efficacy in both domains, accounting for over half of the variance in academic self-efficacy. Mastery experience was predictive of achievement.
    - Verbal/social persuasions predicted math self-efficacy.
- When students learning to code were paired together, their self-efficacy scores were higher than those of students who had not been paired together (Wei et al., 2021). The paired students played different roles, navigator and driver, which allowed them to discuss problems they had as they coded for the first time. Additionally, students who paired up with friends rather than nonfriends not only enjoyed coding more but also performed better at coding.
- Martin and Rimm-Kaufman (2015) examined how student self-efficacy for math and the quality of student–teacher interaction impacted emotional and social engagement in Grade 5 math. Students with high self-efficacy will persist and try hard when presented with challenges, while students with low self-efficacy will dwell on past mistakes and not try as hard when presented with a challenge. Among the findings:
    - Students with higher math self-efficacy reported higher levels of emotional and social engagement in math class. Classrooms with high levels of emotional support, where interactions between teachers and students were sensitive and responsive, had students reporting similar social and emotional engagement, regardless of their initial self-efficacy.

© 2018 Amy Gaumer Erickson & Patricia Noonan

  - The researchers suggest that supporting the emotional needs of students with lower levels of self-efficacy is important for their emotional and social engagement, more so than organizational or instructional supports.
- Paananen et al. (2019) found differences between populations of students in sources of self-efficacy. For a large population-based sample of students (PS), there was a positive association between vicarious experiences and levels of self-efficacy. For students with attention and executive function difficulties (AED), however, there was a negative association between vicarious experiences and levels of self-efficacy. Additionally, while mastery experiences accounted for 12% of the variance in self-efficacy in the PS group, it was 27% in the AED group. "These findings suggest that pupils with attention and [executive function] difficulties or [learning disabilities] build their confidence in self-regulation by relying mostly on past performance accomplishments that give immediate feedback and can be easily interpreted" (p. 58).

Assessments

- The self-efficacy formative questionnaires are self-report measures that ask students to rate behaviors on Likert-type scales. Accommodations should be provided when appropriate and may include reading the items aloud, explaining the items, or having a scribe fill in the response option. These questionnaires should not be used as a pre/post measure. As students learn more about self-efficacy, their internal frame of reference may shift, causing them to become more critical in their self-assessment; this phenomenon is called response shift bias (Bray et al., 1984; Drennan & Hyde, 2008). Two self-efficacy questionnaires promote students' reflection in kindergarten through Grade 2 and Grades 3–6.
  - The *Self-Efficacy Questionnaire K–2* (Noonan et al., 2023) asks students to respond to eight items using emojis for *Like Me*, *Not Sure*, and *Not Like Me*. In most instances, this questionnaire should be read aloud to students. Two example items follow:
    - I believe I can learn to do anything if I try hard.
    - When I need to learn something new, I think about how I have learned hard things before.
  - The *Self-Efficacy Questionnaire 3–6* (Noonan et al., 2023) asks students to respond to 20 items on a 5-point Likert-type scale from *Not Very Like Me* to *Very Like Me*. Two example items follow:
    - I can learn any skill if I work hard and practice.
    - I see making mistakes as a normal part of learning.

  Results are immediately available for reflection. Teachers can access the questionnaires by setting up an account at www.cccstudent.org and following the instructions to create an assessment and administer it to students. Students (and teachers) can use individual questionnaire results to identify Self-Efficacy Strategies that students can focus on cultivating or strengthening.
- The *Self-Efficacy Knowledge Test 3–6* (Noonan et al., 2023) includes 20 items. It is a curriculum-based measure that assesses students' knowledge of self-efficacy constructs and judgement of the most effective course of action when applying these constructs. The test includes multiple-choice, true/false, situational judgement, and short-answer items. The following are a few example items:
  - True or false: If you get good grades in school, you automatically have strong self-efficacy.

© 2018 Amy Gaumer Erickson & Patricia Noonan

- When talking to a friend, which of the following statements would support them in building their self-efficacy?
    a. You are good at this.
    b. You are smart.
    c. Practice makes perfect.
    d. Practice makes progress.
- Imagine that you are facing a challenge and you are not sure you can be successful. Name three things you could do to raise your belief in yourself.

The knowledge test is directly aligned with *Self-Efficacy Lessons [Intermediate]* (Noonan et al., 2023; see the first item under Instructional Practices, below), available for purchase at www.cccframework.org/competency-lessons-and-student-workbooks. The test can be used as pre/post measures prior to and after teaching the self-efficacy lessons. Accommodations should be provided when appropriate and may include reading the items aloud, explaining the items, and having a scribe fill in the response option. Once students have completed the knowledge test on www.cccstudent.org, teachers can view graphed results for individual students and aggregate results for all their students. Teachers can also download a raw data file.

- The *Self-Efficacy Performance-Based Observation* (Noonan & Gaumer Erickson, 2018b) is designed to be embedded within authentic situations, such as academic courses and extracurricular activities. The *Self-Efficacy Performance-Based Observation* can be used at purposeful intervals to monitor the development of each student. Based on observations across time or in specific situations, the educator rates each student's self-efficacious behaviors on the following scale:
    - *Beginning*: Not yet able to demonstrate without scaffolding;
    - *Emerging*: Minimal or superficial demonstration; prompting likely required;
    - *Proficient*: Sufficient demonstration, including self-appraisal and detailed, personalized application;
    - *Advanced*: Independent and consistent demonstration; teaches/prompts others; or
    - *Not Observed*: Documented if there has not been the opportunity to observe the behavior performed by an individual student.

  Example observed behaviors include the following:
    - Continues to work on a challenging task by trying different ways to solve a problem.
    - Demonstrates approaching a challenging task with recognition that ability grows with effort.
    - Demonstrates verbal persuasion and growth mindset self-talk.

  Summary reports are automatically generated on www.cccstudent.org.
- The *Self-Efficacy Performance-Based Reflection* (Noonan, Gaumer Erickson, & Maclean, 2021), directly aligned with the performance-based observation, promotes students' reflection on their demonstration of self-efficacious behaviors within authentic situations. This four-item rubric guides students to determine their use of Self-Efficacy Strategies. Triangulating students' ratings with the performance-based observation results in a more comprehensive analysis of performance. The *Self-Efficacy Performance-Based Reflection* can be used at purposeful intervals to monitor the development of each student. Using the rubric, students reflect on their self-efficacy behaviors related to:
    - mastery experience,
    - verbal persuasion,
    - physiological feedback, and
    - vicarious experiences.

© 2018 Amy Gaumer Erickson & Patricia Noonan

The *Self-Efficacy Assessment Suite: Technical Report* (Gaumer Erickson & Noonan, 2024) includes further background on self-efficacy constructs, administration procedures, validity and reliability evidence, recommended uses of the results, and descriptions of the assessment items.

Instructional Practices

- *Self-Efficacy Lessons [Primary and Intermediate]* (Noonan et al., 2023) outline more than 25 instructional activities across nine units:
    - Unit 1: Introducing Self-Efficacy
    - Unit 2: Understanding Your Current Level of Self-Efficacy
    - Unit 3: Approaching Challenges With a Growth Mindset
    - Unit 4: Viewing Mistakes and Setbacks as Opportunities to Learn
    - Unit 5: Reflecting on Past Accomplishments to Build Your Confidence
    - Unit 6: Giving and Accepting Feedback and Praise
    - Unit 7: Understanding How Your Emotions Impact Your Self-Efficacy
    - Unit 8: Building Your Self-Efficacy by Observing Others' Success
    - Unit 9: Self-Efficacy—Putting It All Together

  The lessons include explicit instruction and application elements that teachers can modify based on students' experiences and needs. The lessons, accompanied by PDF student workbooks with worksheets that can be reproduced to facilitate learning, are available for purchase at www.cccframework.org/competency-lessons-and-student-workbooks.
- 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 et al., 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. Teachers can encourage this growth mindset by praising effort and growth rather than ability.
- "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). Conversely, certain teaching practices can 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 children believe themselves to be, lowering self-efficacy (Hughes & Chen, 2011).
- Teachers can strengthen young children's self-concept by helping them individually set goals and then helping them track progress using charts in the classroom (Myers-Walls et al., 2015). Teachers can also encourage self-praise. The research and tools included in the article by Myers-Walls et al. (2015) are available in this handout.
- In the subject area of writing, Pajares et al. (2007) found that perceived mastery experience (how students interpret their own previous performance) had the largest impact on writing self-efficacy beliefs. The authors suggest that teachers can help students experience mastery in writing by making sure students are engaged in the process and by maintaining a high level of interaction with students as they self-evaluate their writing.

© 2018 Amy Gaumer Erickson & Patricia Noonan

- 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. Students build self-efficacy when a teacher demonstrates a mistake's usefulness by explaining what they can learn from it.
  - Having a peer model how they 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 they 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.
- 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., elementary to middle school) and ways 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.
- Researchers (McMahon et al., 2009) found that classroom climate (in terms of areas such as cohesiveness, student satisfaction, level of difficulty, competitiveness, etc.) had an effect on the academic self-efficacy of low-income students in Grades 4–5. Some of the conclusions from the research are:
  - Positive and supportive classroom environments together with school belonging were related to higher language arts self-efficacy.
  - Using cooperative, interactive teaching strategies regardless of subject area can promote cohesion and belonging among students.
- 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.
  - Providing cognitive and motivational scaffolding:
    - Personalize high-quality feedback that includes encouragement to continue.
    - Support students to rephrase 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, n.d.).
    - Support student autonomy through cues that emphasize good performance as a result of the student's effort.

© 2018 Amy Gaumer Erickson & Patricia Noonan

        - 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:
        - 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.

This guide can be cited as: Gaumer Erickson, A. S., Noonan, P. M., & Lantz, T. (2024). *Research guide (Grades preK–6): College and career competency: Self-efficacy*. College & Career Competency Framework. https://www.cccframework.org/

References and Resources

Andrade, H. L. (2022, February 17). New insights into the effectiveness and benefits of student self-assessment [Audio podcast episode]. In *SciPod*. https://www.scipod.global/new-insights-into-the-effectiveness-and-benefits-of-student-self-assessment/

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, *28*(2), 117–148. https://doi.org/10.1207/s15326985ep2802_3

Bardhoshi, G., Duncan, K., & Erford, B. T. (2017). Effect of a specialized classroom counseling intervention on increasing self-efficacy among first-grade rural students. *Professional School Counseling*, *21*(1), 12–25. https://doi.org/10.5330/1096-2409-21.1.12

Bray, J. H., Maxwell, S. E., & Howard, G. S. (1984). Methods of analysis with response-shift bias. *Educational and Psychological Measurement*, *44*(4), 781–804. https://doi.org/10.1177/0013164484444002

Butz, A. R., & Usher, E. L. (2015). Salient sources of early adolescents' self-efficacy in two domains. *Contemporary Educational Psychology*, *42*, 49–61. https://doi.org/10.1016/j.cedpsych.2015.04.001

Cvencek, D., Greenwald, A. G., & Meltzoff, A. N. (2016). Implicit measures for preschool children confirm self-esteem's role in maintaining a balanced identity. *Journal of Experimental Social Psychology*, *62*, 50–57. https://doi.org/10.1016/j.jesp.2015.09.015

Davis-Kean, P. E., Jager, J., & Collins, W. A. (2009). The self in action: An emerging link between self-beliefs and behaviors in middle childhood. *Child Development Perspectives*, *3*(3), 184–188. https://doi.org/10.1111/j.1750-8606.2009.00104.x

Drennan, J., & Hyde, A. (2008). Controlling response shift bias: The use of the retrospective pre-test design in the evaluation of a master's programme. *Assessment and Evaluation in Higher Education*, *33*(6), 699–709. https://doi.org/10.1080/02602930701773026

Dweck, C. S. (n.d.). *How can you change from a fixed mindset to a growth mindset?* Mindset. https://web.archive.org/web/20070626062018/http://mindsetonline.com/changeyourmindset/firststeps/index.html

Dweck, C. S., Walton, G. M., & Cohen, G. L. (2014). *Academic tenacity: Mindsets and skills that promote long-term learning*. Bill & Melinda Gates Foundation. https://ed.stanford.edu/sites/default/files/manual/dweck-walton-cohen-2014.pdf

Friedel, J. M., Cortina, K. S., Turner, J. C., & Midgley, C. (2010). Changes in efficacy beliefs in mathematics across the transition to middle school: Examining the effects of perceived teacher and parent goal emphases. *Journal of Educational Psychology*, *102*(1), 102–114. https://doi.org/10.1037/a0017590

© 2018 Amy Gaumer Erickson & Patricia Noonan

Gadari, S., Farokhzadian, J., & Shahrbabaki, P. M. (2022). Effectiveness of resilience training on social self-efficacy of the elementary school girls during COVID-19 outbreak. *Clinical Child Psychology and Psychiatry*, *27*(1), 308–319. https://doi.org/10.1177/13591045211056504

Gaumer Erickson, A. S., & Noonan, P. M. (n.d.). College & Career Competency Framework: Student Assessments. https://www.cccstudent.org/

Gaumer Erickson, A. S., & Noonan, P. M. (2024). *Self-efficacy assessment suite: Technical report*. College & Career Competency Framework. https://www.cccframework.org/wp-content/uploads/Self-EfficacyAssessSuiteTech.pdf

Goddard, R. D. (2001). Collective efficacy: A neglected construct in the study of schools and student achievement. *Journal of Educational Psychology*, *93*(3), 467–476. https://doi.org/10.1037/0022-0663.93.3.467

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. https://doi.org/10.1037/spq0000026

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

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. https://doi.org/10.1016/j.appdev.2010.03.005

Joët, G., Usher, E. L., & Bressoux, P. (2011). Sources of self-efficacy: An investigation of elementary school students in France. *Journal of Educational Psychology*, *103*(3), 649–663. https://doi.org/10.1037/a0024048

Lee, Y. S., & Jonson-Reid, M. (2016). The role of self-efficacy in reading achievement of young children in urban schools. *Child and Adolescent Social Work Journal, 33*(1), 79–89. https://doi.org/10.1007/s10560-015-0404-6

Lottero-Perdue, P. S., & Lachapelle, C. P. (2019). Instruments to measure elementary student mindsets about smartness and failure in general and with respect to engineering. *International Journal of Education in Mathematics, Science and Technology*, *7*(2), 197–214. https://www.ijemst.net/index.php/ijemst/article/download/646/176

Mantzicopoulos, P. (2006). Younger children's changing self-concepts: Boys and girls from preschool through second grade. *The Journal of Genetic Psychology*, *167*(3), 289–308. https://doi.org/10.3200/GNTP.167.3.289-308

Margolis, H., & McCabe, P. P. (2006). Improving self-efficacy and motivation: What to do, what to say. *Intervention in School and Clinic*, *41*(4), 218–227. https://doi.org/10.1177/10534512060410040401

Martin, D. P., & Rimm-Kaufman, S. E. (2015). Do student self-efficacy and teacher–student interaction quality contribute to emotional and social engagement in fifth grade math? *Journal of School Psychology*, *53*(5), 359–373. https://doi.org/10.1016/j.jsp.2015.07.001

McElroy, M. (2015, November 2). Children's self-esteem already established by age 5, new study finds. *UW News*. http://www.washington.edu/news/2015/11/02/childrens-self-esteem-already-established-by-age-5-new-study-finds/

McMahon, S. D., Wernsman, J., & Rose, D. S. (2009). The relation of classroom environment and school belonging to academic self-efficacy among urban fourth- and fifth grade students. *The Elementary School Journal*, *109*(3), 267–281. https://doi.org/10.1086/592307

McMillan, J. H., & Hearn, J. (2008). Student self-assessment: The key to stronger student motivation and higher achievement. *Educational Horizons*, *87*(1), 40–49. https://www.jstor.org/stable/42923742

Muenks, K., & Miele, D. B. (2017). Students' thinking about effort and ability: The role of developmental, contextual, and individual difference factors. *Review of Educational Research*, 87(4), 707–735. https://doi.org/10.3102/0034654316689328

© 2018 Amy Gaumer Erickson & Patricia Noonan

Myers-Walls, J. A., Hinkley, K. R., & Reid, W. H. (2015). *Encouraging positive self-concepts in children* (Paper No. 1043). Historical Documents of the Purdue Cooperative Extension Service. http://docs.lib.purdue.edu/agext/1043

Noonan, P. M., & Gaumer Erickson, A. S. (2018a). *College & Career Competency Sequence*. College & Career Competency Framework. https://www.cccframework.org/

Noonan, P. M., & Gaumer Erickson, A. S. (2018b). *Self-Efficacy Performance-Based Observation*. Derived from *College and Career Competency Sequence.* College & Career Competency Framework. https://www.cccframework.org/

Noonan, P. M., & Gaumer Erickson, A. S. (2018c). *The skills that matter: Teaching interpersonal and intrapersonal competencies in any classroom*. Corwin.

Noonan, P. M., Gaumer Erickson, A. S., Heger, E., & Haught, T. (2023). *Self-efficacy lessons [Primary, intermediate, and secondary]* [Teacher lessons and student workbooks]. College & Career Competency Framework. https://www.cccframework.org/competency-lessons-and-student-workbooks/

Noonan, P. M., Gaumer Erickson, A. S., & Maclean, T. L. (2021). *Self-Efficacy Performance-Based Reflection*. Derived from *College and Career Competency Sequence*, by P. M. Noonan & A. S. Gaumer Erickson (2018). College & Career Competency Framework. https://www.cccframework.org/

Ozturk, N. (2015). A short review of research on metacognition training with elementary students. *Journal of Educational & Instructional Studies in the World*, *5*(3), 50–62. https://www.researchgate.net/publication/323686218_A_short_review_of_research_on_metacognition_training_with_elementary_students

Paananen, M., Aro, T., Viholainen, H., Kopnen, T., Tolvanen, A., Westerholm, J., & Aro, M. (2019). Self-regulatory efficacy and sources of efficacy in elementary school pupils: Self-regulatory experiences in a population sample and pupils with attention and executive function difficulties. *Learning and Individual Differences*, *70*, 53–61. https://doi.org/10.1016/j.lindif.2019.01.003

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, *66*(4), 543–578. https://doi.org/10.3102/00346543066004543

Pajares, F., Johnson, M. J., & Usher, E. L. (2007). Sources of writing self-efficacy beliefs of elementary, middle, and high school students. *Research in the Teaching of English*, *42*(1), 104–120. https://www.jstor.org/stable/40171749

Park, C. (2003). Engaging students in the learning process: The learning journal. *Journal of Geography in Higher Education*, *27*(2), 183–199. https://doi.org/10.1080/03098260305675

Roddenberry, A., & Renk, K. (2010). Locus of control and self-efficacy: Potential mediators of stress, illness, and utilization of health services in college students. *Child Psychiatry and Human Development*, *41*(4), 353–370. https://doi.org/10.1007/s10578-010-0173-6

Schunk, D. H. (1985). Self-efficacy and classroom learning. *Psychology in the Schools*, *22*(2), 208–223. https://doi.org/10.1002/1520-6807(198504)22:2<208::AID-PITS2310220215>3.0.CO;2-7

Schunk, D. H., & Pajares, F. (2001). The development of academic self-efficacy. In A. Wigfield & J. Eccles (Eds.), *Development of achievement motivation*. Academic Press. https://web.archive.org/web/20140328033847/http://www.uky.edu/~eushe2/Pajares/SchunkPajares2001.PDF

Takacs, Z. K., & Kassai, R. (2019). The efficacy of different interventions to foster children's executive function skills: A series of meta-analyses. *Psychological Bulletin*, *145*(7), 653–697. https://doi.org/10.1037/bul0000195

Tinto, V. (2022). Increasing student persistence: Wanting and doing. In Huijser, H., Kek, M. Y. C. A., & Padró, F. F. (Eds.), *Student support services* (pp. 53–70). Springer. https://doi.org/10.1007/978-981-16-5852-5_33

© 2018 Amy Gaumer Erickson & Patricia Noonan

Torgrimson, S. J., Tan, P. Z., & Grammer, J. K. (2021). Associations among response inhibition, motivational beliefs, and task persistence in early elementary school. *Journal of Experimental Child Psychology*, 208, Article 105141. https://doi.org/10.1016/j.jecp.2021.105141

Virtual Lab School. (n.d.). Promoting a sense of self: Preschool children. https://www.virtuallabschool.org/preschool/self-and-cultural-understanding/lesson-2

Wei, X., Lin, L., Meng, N., Tan, W., Kong, S.-C., & Kinshuk. (2021). The effectiveness of partial pair programming on elementary school students' computational thinking skills and self-efficacy. *Computers & Education*, *160*, Article 104023. https://doi.org/10.1016/j.compedu.2020.104023

Yeager, D. S., & Walton, G. M. (2011). Social-psychological interventions in education: They're not magic. *Review of Educational Research*, *81*(2), 267–301. https://doi.org/10.3102/0034654311405999

Zumbrunn, S., Broda, M., Varier, D., & Conklin, S. (2020). Examining the multidimensional role of self-efficacy for writing on student writing self-regulation and grades in elementary and high school. *British Journal of Educational Psychology*, *90*(3), 580–603. https://doi.org/10.1111/bjep.12315

© 2018 Amy Gaumer Erickson & Patricia Noonan