

Move Your Students to their Own Personal Self-Awareness of Learning

Adopting new academic and learning behaviors may be too much for some students when they become overwhelmed by balancing multiple classes and an unexpected increased workload. However, it is possible for you as their instructor, even with large classes, to encourage students to start thinking about specific strategies that might increase success.

Way to Succeed can help!

We designed Way to Succeed to accompany first-year math and other STEM classes. Our goal is to help your students become aware of and develop these and many other academic skills and strategies in a personal way while freeing you to focus on your math or other STEM content. The online program works alongside your class, helping students be more successful through personal learning profiles, videos, short quizzes, readings, and research-based recommendations designed to improve the skills, attitudes, cognitions, and learning strategies in which successful students engage. Your students can more quickly make changes to become better learners.



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Importance of Student Factors in Learning

As educators, we are concerned that our students learn the content of our courses with the best understanding possible, but how our students learn can make a marked difference in academic outcomes. Many influences play into the quality of the academic outcomes. Schools and instructors have considerable control over environmental factors, course factors, content, curriculum, pedagogy, and even what textbook to use. However, one of the most important group of factors predicting success is the factors students themselves bring to the learning experience.

Nguyen, Phan, and Nguyen (2019) studied the student factors relating to the persistence of students. Of the student factors of personality (introvert vs extrovert), high school GPA, entrance test scores, and approach to learning (surface, strategic, deep), personality was the only factor that was not significant. The surface approach to learning was negatively correlated to achievement, while test scores, GPA, and approach to learning were positively correlated.

When students arrive in your virtual or face-to-face classroom, they cannot alter their prior high school GPA, entrance test scores, or their prior coursework. However, how the students approach learning can be something that can be changed. Students can and do develop skills and improve upon their learning approaches over time. How well they adapt to the

demands of the college classroom has a profound effect on achievement. The quicker they adapt, the better.

Therefore, the importance of early interventions, especially for first-year math students, cannot be overstated. Failing a math class accounts for the greatest number of lost scholarships and drop outs. Students who find themselves falling behind can quickly lose motivation and hope. Climbing out of such a downward spiral before the end of a semester can be nearly impossible. The sooner students understand and meet academic expectations both in and out of the classroom, the better their outcomes will be.

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Start with awareness of what is required to be successful in your class. Many of you already tell your students your expectations and what it takes to be successful, but nailing down the specifics of what successful students do doesn't always translate to higher achievement. A list of actions and attitudes can be helpful, but often, these counsels are ignored because early in the semester, students have not always encountered the increased rigor of college courses. They do not always see the need to "step up their games" until later in the semester when a passing grade cannot be recovered.

Nguyen, M. T., Phan, T. A., & Nguyen H. T. (2019). Admission score, family income, HSGPA, and learning approaches to predict academic performance in mathematics. *International Journal of Learning in Higher Education*, 26(2), 17–33.
<https://doi.org/10.18848/2327-7955/CGP/v26i02/17-33>



Way to Succeed
Mindful Insights for Learning



Math Anxiety creates a heightened state of fear, uncertainty, and nervousness that appears to interfere with the logical thought required especially during assessments. This anxiety can also appear when a student is attending classes and when working on learning new material independently. The condition of anxiety interferes with mathematical reasoning. In other words, students with math anxiety struggle with thinking when working with mathematical concepts. One can see how this would make learning mathematics difficult for highly anxious students. Because of this difficulty in thinking, students with math anxiety often give themselves over to the idea that they are not competent in mathematics, and that idea feeds their fear to the point of phobic paralysis. Although not always debilitating, math anxiety can hinder a student's achievement, choice of major, choice of career, and self-esteem.

What are ways we can help students overcome math anxiety?

Your attitude and encouragement can go a long way towards alleviating anxieties in your students, but students need to diffuse these anxieties for themselves. The new [Way to Succeed](#) eBook (available Fall 2021) contains an entire chapter on math anxiety, the top 10 reasons students are anxious about math, and ways to overcome it. Your students can learn to recognize what is behind their anxiety and how to address their specific fears with practical solutions.

Constructivism and Metacognition

How are these ideas related?



Constructivism is a learning theory and pedagogy that ascribes to the idea that students build or create their own knowledge and understanding through experiences, cognitions, and interactions with the learning environment. The intent of constructivist curriculum is to prescribe learning experiences and situations that will inspire students to actively engage in and discover solutions to problems, and in the process, add to and expand on existing knowledge and skills.

The idea that students who develop their own knowledge within themselves pairs well with the idea of metacognition. Metacognition can be defined as the knowledge of and reflection on one's own learning, and the self-regulation of strategic approaches that maximize attaining new knowledge and skills.

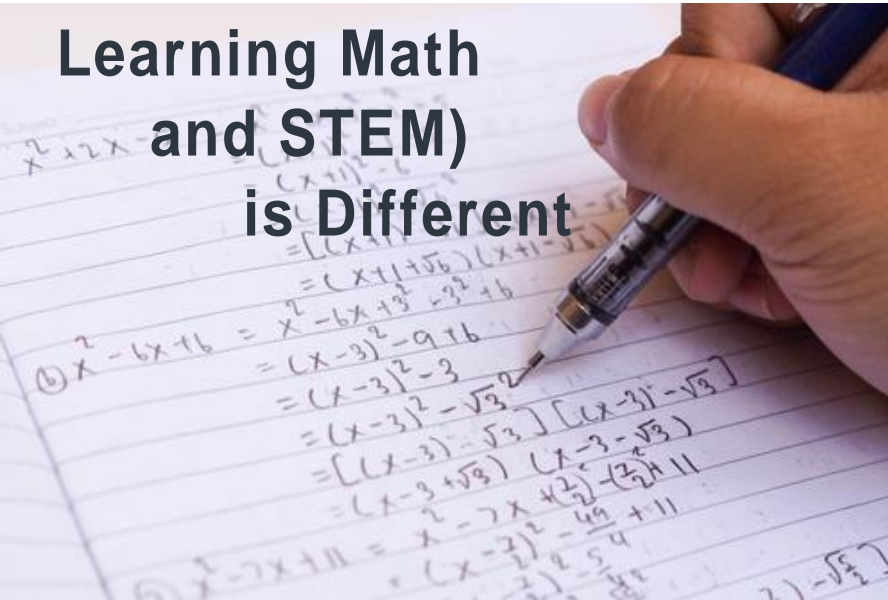
The marriage of these two ideas result in a model learning situation and model learner. While many students further develop their existing metacognitive awareness and skills through a constructivist approach, students who lack metacognitive awareness often struggle with difficult PBL and experiential learning situations.

According to Kolb and Kolb (2009), some students do not recognize what learning is or how it is accomplished. Other students are not aware of their own learner characteristics and how those characteristics contribute to or detract from their ability to be successful in the classroom. Still others lack the appreciation of the time needed to learn content for understanding, and that recall alone is not sufficient. When placed in constructivist settings, these students struggle to make sense of solutions and have more difficulty applying concepts to new situations.

While a constructivist approach can move students towards the ideal of a model learner, pairing instruction in metacognition can help students who might struggle in constructivist classrooms. With metacognitive skills, these students have a framework through which they can regulate and control their learning, and can better recognize deficiencies and learning efficacy. Without self-reflection and other metacognitive skills, some students appear to inhibit their own learning because they mistakenly attribute difficulty with a challenging academic task as an inability to perform and keep up with others in a mathematics classroom, leading to a lack of confidence and unnecessary failure.

Kolb, A. Y. & Kolb, D. A. (2009). The learning way: Meta-cognitive aspects of experiential learning. *Simulation & Gaming*, 40(3), 297 – 327. doi:10.1177/1046878108325713

Learning Math and STEM) is Different



WATCH Current Industry Trends:

Enrollment is projected to be down in the coming year in light of the changes due to the Covid-19 virus. As many schools are deciding what the classroom format will look like for students in the fall, face-to-face or online, we should not be surprised that students are unsure about enrolling for classes when this format is unknown. Despite the fact that students want the college experience on campus this fall, institutions are making sure their campus are safe for all students, faculty, and support employees. Many of the non-academic social activities students imagine as important parts of their college experiences. Sports, fraternities, sororities, and clubs are scaled back, online, or gone altogether, leaving students with the sometimes lonely experience of sitting behind a computer screen with minimal real-life interaction with peers and faculty. What schools decide do for students in this situation may be critical to how many students enroll, and the sooner these decisions are made, the better.

While the employment demand for qualified graduates in the sciences, technology, engineering and mathematics fields is rising, students who graduate from colleges and universities in these STEM fields is declining. By some estimates, only half of the students who begin college as STEM majors actually graduate with their degrees in STEM (Gibson, Siopsis, & Beale, 2020).

Many schools are concerned that their students are either not prepared adequately for college level learning in STEM fields, or that support within the university or college system is lacking for these students. Either way, institutions are troubled by the trend

that causes these students to drop-out, transfer to other schools, or change to less demanding majors, wasting valuable time and resources.

Gibson, Siopsis, and Beale studied the effectiveness of a specialized support program designed to retain STEM students at their small liberal arts college. This 6-year study showed that supporting students with common sense remedies (see lists to the right) showed significant improvements in retention and graduation rates for STEM majors.

By immersing their students into the STEM culture on campus, this school is projecting a more realistic understanding of expectations and providing students with the inspiration and means to accomplish their dreams while building a sense of community within the cohort on campus. Here are interventions that seemed to have a positive effect for

the students in this study.

- **Orientation focused on**
 - college success skills,
 - networking with other students and faculty,
 - time management,
 - self-efficacy measurements,
 - attitude improvement, and
 - focus groups
- **Academic support including**
 - supplemental instruction,
 - peer-tutors,
 - faculty mentors
 - required freshmen research,
 - STEM seminars,
 - surveys,
 - field trips,
 - summer programs, and
 - attendance requirements at STEM activities.

Gibson, A. D., Siopsis, M., & Beale, K. (2020). Improving Persistence of STEM Majors at a Liberal Arts College: Evaluation of the Scots Science Scholars Program. *Journal of STEM Education: Innovations & Research*, 20(2), 6–13.

This Month's Q&A About Way to Succeed

Q: How does Way to Succeed help students to be more successful?

A: Way to Succeed focuses on ways to be successful in mathematics and STEM classes. Historically, these are the classes where students have the most trouble. STEM classes can be a stumbling block to many first-year students because these classes are different and more challenging in some ways than other first-year college classes.

Secondly, Way to Succeed personalizes a learning improvement approach for each student, regardless of a student's mathematical ability. All students benefit, but the ones who have not yet developed



metacognitive skills necessary for college learning will benefit the most.

The Way to Succeed program makes recommendations to students is based on their individual learning profiles. These recommendations help students become more aware of good learning practices. They also inspire the use of existing resources that your campus most likely already provides, as well as delivering dozens of other actions that strengthen learning and encourage cognitions especially useful for mathematics and other STEM areas of study.

QUOTE OF THE MONTH

“Optimism is the faith that leads to achievement. Nothing can be done without hope and confidence.”

Helen Keller

WRF

12/12/1926 – 10/13/2020

RIP



Visit our Website

We offer a unique research-supported approach to helping students become more independent and successful in your classes.

Visit [Way To Succeed](#) for more information about our product, pricing calculator, and how to order.

Be ready for Fall 2021 classes!

First-year, at-risk, and probationary students typically need more support than most other returning students especially when these students enroll in online classes. [Way to Succeed](#) can help you assist these students with a personalized, stand-alone success program that works well alongside mathematics and other STEM courses. We help your students develop their own self-regulating and metacognitive skills.

- No grading required
- Personalized for each student
- Accompanying eBook for better student accountability
- Focused on improving self-regulation, effort, goal-setting, time-management skills, metacognition, and accessing resources
- Research-based process
- Low department and per-student costs
- Compatible with any STEM text or curriculum, online or face-to-face
- Instructor reports

Upcoming Articles in the next issue of *Learning Insights*

1. Closing Gaps: Support Where Needed
2. The Purpose of Math Homework
3. Book Review: “Quiet: The Power of Introverts in a World that Can’t Stop Talking,” by Susan Cain
....and more!

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