Equipping Student Academic Coaches to Effectively Engage First-Year Students in Corequisite Math Support Labs

Melody G. Shumaker
Hassan M. Hassani

ABOUT THE AUTHORS

Melody Shumaker, EdD, *is the director of the First Year Experience program and coordinator of Learning Support programs at Columbus State University. She has worked in higher education for 25 years in faculty and administrative roles. Dr. Shumaker's work focuses on retention efforts for first-year students.*

Hassan Hassani, MS, *is assistant professor in the Department of Mathematics at Columbus State University. He holds three decades of experience in teaching, advising and mentoring university students. He teaches courses in quantitative reasoning, mathematical modeling, and college algebra. His research includes serving underprepared students.*

Disclosure Statement
No potential conflict of interest was reported by the authors.

Over the past few years at Columbus State University, the learning support math faculty and director have focused on the importance of training academic coaches to effectively engage students in corequisite support math with key practices implemented in an emporium-based model for our corequisite support math labs. This model consists of experienced math faculty as instructional facilitators and coordinators and student peers as academic coaches to provide support in the areas of coaching, tutoring, and mentoring. The purpose of this implementation is to empower our students to acquire knowledge, to strengthen interpersonal and academic skills, and to create a sense of belonging at the institution in order to attain career goals. To effectively engage students in these efforts, the learning support math faculty and director have focused on the implementation of solid training for our academic coaches based on best practices in the areas of growth mindsets, problem-solving, emotional intelligence, and motivational interviewing.

Effective Training Practices in Academic Coaching Programs
Professional development is a key element of academic coach preparedness in order to provide a supportive learning environment. Academic coaches are required to attend workshops to develop knowledge and to gain exposure that inform strategies to engage our student population enrolled in learning support math corequisite labs. Every fall semester, we work with faculty and professional counselors to deliver the training to our academic coaches. These experts in the field create training sessions in which the coaches learn about research-based material through article reviews, discussions, case study analysis, simulated activities, and question/answer sessions. Coaches are given readings on the subject matter a couple of weeks prior to the training to create a context from which to engage in the training sessions. During the training sessions, the coaches are given a question based on the training topic to start a dialogue between the expert trainer and the coaches regarding the literature they reviewed prior to the training. At the training session, literature and research on the topic are disseminated through a lecture with discussion points. Coaches then have an opportunity to engage subject matter through role play and follow up questions to create real-life scenarios in which to implement lessons learned. The knowledge and strategies gained by the academic coaches are, in turn, used in coaching sessions to equip students in lab sessions with content knowledge, resource knowledge, and to make connections to the university, which is critical to student success. Follow-up sessions are then conducted with student coaches to discuss implementations and further discuss how coaching sessions might be enhanced through lessons learned. A review of student success needs by our faculty, administrators, students, and development team identified key focal points for our coaches' training. As mentioned above, topics that have been

Corresponding Author
Melody G. Shumaker, EdD, Director - First Year Experience Program
Columbus State University
4225 University Avenue | Columbus, GA, 31907
Email: shumaker_melody@columbusstate.edu

beneficial to the academic coaches and students include growth mindsets, problem-solving, emotional intelligence, and interviewing skills.

Growth Mindsets as an Effective Practice

The first concept addressed in the training program is to create a supportive learning environment through growth mindsets. The concept of growth mindsets helps students focus on how abilities can be developed over time to facilitate learning and persistence in engagements that provide opportunity for growth and development (Dweck, 2016). In college, the ways in which learning takes place may be new to first-year students, and they must develop a new construct from which to engage this new path (Baldwin et al., 2020). Students' beliefs can either help or hinder the learning process. The application of growth mindsets can help students see possible paths in the learning process and take continued steps forward (Yeager & Dweck, 2012). Therefore, students can benefit from this way of thinking in that they are empowered to see the path of college as one of learning opportunities as ways to adjust course as needed. According to this concept, intelligence can be developed through sustained effort, good strategies, appropriate help, and support from others (Yeager et al., 2018). Therefore, as academic coaches engage students with this mindset, students can be more receptive to seeing areas in which growth and development may be pursued. As these types of conversations are had repeatedly over the course of the semester, these conversations can turn into practices that strengthen the students' approach to learning and overcoming challenges (Nicoll, 2014). As academic coaches engage students with practices that emulate growth mindsets, students can be exposed to valuable ways of thinking about course achievement and academic pursuits, which creates an open door for further opportunities to learn. Students can also learn to become more motivated in learning, to approach learning with a variety of strategies, and to be more willing to ask for help as needed. Thus, academic engagement is enhanced by approaching learning with a growth mindset (Xiao et al., 2023).

Mathematics can be a challenge for many students, so implementing the growth mindsets approach to learning can help to remove barriers for students. Often, students think that math is a hard subject to grasp; however, when students see the importance of gradually improving their skills, there is a cumulative effect in the understanding of course knowledge. Students will also start to see that tomorrow's work will be easier than today's as they daily build upon what is learned as the application of growth mindsets can assist in the formation of thoughts needed to try those small steps towards mastery. Exposure to the subject matter on a continuous basis with repeated practice can also create a strong foundation in math. With acquisition of each topic, confidence is gained, and attempts to further engage subject matter are pursued.

Problem-Solving as an Effective Practice

The next focal point in the academic coach training is problem-solving. Colleges and workforce demand innovative problem-solving in order to effectively bring about better solutions to existing needs (Zhao & Zhao, 2022). Problem-solving is a highly desirable skill that can be transferrable to societal engagements on the college campus and can be seen as a key component of strategic thinking by employers (Sullivan, 2023). According to the design thinking model, key elements of problem-solving include learning how to acquire knowledge through the gathering of information, how to probe the ideation of possible solutions through analysis of information, and how to deliver the implementation of ideas through prototyping in order to generate innovative solutions. (Brown, 2008). Innovative thinking is a valuable tool for students in order to acquire, process, and manage information and resources in learning experiences. When students learn how to problem-solve, they learn how to overcome challenges they face to understand mathematical content or other facets of college life. Therefore, seeds of this skill are important to plant early in the college journey to support students' endeavors for the path ahead.

Emotional Intelligence as an Effective Practice

The third key focal point for academic coach training is emotional intelligence. Emotional intelligence is another key element in providing support for students' success. A cultivation of emotional intelligence includes the development of self-awareness, self-management, and empathy, which can

> Students create vision, explore possible paths to learning, and identify best ways to approach learning experiences.

lead to social skills. Emotional intelligence is important to increase one's knowledge base for teamwork, clear communication, and solving problems (Goleman, 2014a); which can lead to academic engagement and preparedness for the workforce. Emotional intelligence skills also enable students to cultivate a mindset to be ready for the future workforce (Galagan et al., 2019). Students gain further understanding as to how to build relationships with such skills and form leadership skills as well (Goleman, 2014b). Within higher education, there is a need to provide training for students in emotional intelligence (Machera & Machera, 2017). As students engage an academic coach, self-awareness of content to review becomes known and an awareness of helpful strategies to understand as content is gleaned. Self-management strategies such as time management and note-taking can also be developed as study skills are applied during the engagements. Students learn that repetitive and regular practice times to engage subject matter are needed for content acquisition and note-taking strategies can provide organization for assimilation of problem-solving procedures. Motivation to learn the subject matter may also be gained through collaborative study times. When combined with an understanding of growth mindsets, students can further build a mental framework to increase comprehension in mathematics or other subjects. The self-efficacious elements gained through this information engages the learner and cultivates a self-awareness of what they can and need to do. All these skills gained can help to lead students down the path of learning.

Motivational Interviewing as an Effective Practice

The final key element of training has been motivational interviewing. Motivational interviewing is a collaborative process in which the academic coaches create a supportive environment for students to determine goals, develop autonomy, and chart the path to learning. Practices include the implementation of reflective listening with empathy and optimism in communication (Miller & Rollnick, 1991). The purpose of these practices is to create non-confrontational ways to help students to become autonomous in their learning. This autonomy empowers students to gain resource management skills, self-direction skills, and experiential learning skills. The implementation of this concept may also help students become more resilient in learning academic content (Wells & Jones, 2018). Students create vision, explore possible paths to learning, and identify best ways to approach learning experiences. Academic coaches glean practical and implementable tools that create an environment conducive to learning. When coaches consider how to listen, they are empowered to communicate mathematical content with empathy in order to open the conduit for students to be more receptive about learning the subject matter. Reflective listening between the coach and student can also reveal what content needs to be further reviewed and expounded upon. When this type of engagement is repeated, rapport can be developed and more discussions about the content can occur. Thus, students may gain a better grasp of the material. Repetition of this practice can give students applicable skills not only needed for subject matter acquisition but also for real world-application of course content. Thus, the practice of motivational interviewing can engage students in such a way as to be prepared for college and work related to the field in which they pursue.

Student academic coaches have a variety of academic experiences as well as non-academic experiences. These experiences are valuable to the role of an academic coach and provide a context in which to engage peers (Collier, 2017). The academic coaches are often juniors and seniors who have walked the path of university life and understand the academic resources, learning strategies, and campus services. They lead through example and serve as role models to incoming students. When academic coaches gain training in growth mindsets, problem-solving, emotional intelligence, and motivational interviewing, the peer engagements are more open and strategically focus on applicable academic and non-academic resources and strategies for success, engagement, and integration into the campus community. Ownership in learning occurs through engagement in a self-efficacious, non-judgmental, and supportive learning environment. Thus, students are given knowledge and support that can help to facilitate students' academic and career goals.

Conclusions

The learning support mathematics faculty and director have found that when the knowledge is gleaned by the coach and applied in student engagements, the knowledge has a positive impact on the learning environment (see Appendix for sample training outline). Students become more comfortable with learning, gain strategies for empowerment, become self-efficacious in their role as student, and become integrated in the university. This learning is transferrable not only on campus but to daily activities in society. Students gain greater skills to become more productive citizens who are proactively ready to engage. They have a better view of reality and how

to approach situations at hand. The goal of the learning support mathematics faculty and director has focused on creating life-long impacts on students' quality of life on campus, in the community, and contributions to society. This training has had a positive impact on all involved, and plans for further implementations scheduled in the future.

References

Brown, T. (2008). Design thinking. *Harvard Business Review*, *86*(6), 84.

Baldwin, A., Bunting, B. D., Daugherty, L., Lewis, L., & Steenbergh, T. A. (2020). *Promoting belonging, growth mindset, and resilience to foster student success*. National Resource Center for The First-Year Experience and Students in Transition, University of South Carolina.

Collier, P. (2017). Why peer mentoring is an effective approach for promoting college student success. *Metropolitan Universities*, *28*(3), 9–19. https://doi.org/10.18060/21539

Dweck, C. (2016). What having a "growth mindset" actually means. *Harvard business review, 13*(2), 2–5.

Galagan, P., Hirt, M., & Vital, C. (2019). *Capabilities for talent development: Shaping the future of the profession*. Association for Talent Development.

Goleman, D. (2014a). *What makes a leader: Why emotional intelligence matters*. More Than Sound.

Goleman, D. (2014b). What it takes to achieve managerial success: Four facets of emotional intelligence epitomize the necessary competencies. *Talent Development*, *68*(11), 48–52.

Machera, R. P., & Machera, P. C. (2017). Emotional intelligence in modifying and academic adjustment among first year university students in North Jordan. *International Journal of Psychological Studies*, *3*(2), 135.

Miller, W. R., & Rollnick, S. (1991). *Motivational interviewing: Preparing people to change addictive behavior*. The Guilford Press.

Nicoll, W. G. (2014). Developing transformative schools: A resilience-focused paradigm for education. *International Journal of Emotional Education*, *6*(1), 47–65.

Sullivan, J. (2023). Six ways to screen job candidates for strategic thinking [Special issue]. *Harvard Business Review*, 24–26. https://hbr.org/2016/12/6-ways-to-screen-job-candidates-for-strategic-thinking

Wells, H., & Jones, A. (2018). Learning to change: The rationale for the use of motivational interviewing in higher education. *Innovations in Education & Technology International*, *55*(1), 111–118. https://doi.org/10.1080/14703297.2016.1198714

Xiao, F., Zhang, Z., Zhou, J., Wu, H., Zhang, L., Lin, M., & Lang, H. (2023). The relationship between a growth mindset and the learning engagement of nursing students: A structural equation modeling approach. *Nursing Education in Practice*, *73, 103796*. https://doi.org/10.1016/j.nepr.2023.103796

Yeager, D. D., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational Psychologist*, *47*(4), 302–314. https://doi.org/10.1080/00461520.2012.722805

Yeager, D. S., Hanselman, P., Paunesku, D., Hulleman, C., Dweck, C., Muller, C., & Duckworth, A. (2018). Where and for whom can a brief, scalable mindset intervention improve adolescents' educational trajectories. *PsyArXiv Preprints*. https://doi.org/10.31234/osf.io/md2qa

Zhao, J. J., & Zhao, S. Y. (2022). Creativity and innovation programs offered by AACSB-U.S. colleges of business: A web mining study. *Journal of Education for Business*, *97*(5), 285–294. https://doi.org/10.1080/08832323.2021.1934373

Appendix

Sample Outline of Academic Coaching Session

Introductions
    Learning Outcomes
    Reading Reflections
    Real Life Examples

Literature Review
    Discussion of Literature

Role play with simulated situation
    Follow up questions

Discussion of application in coaching sessions

Note: A follow up session is held to discuss lessons learned.