Learning Ownership:

A Framework to Enhance Educational Programs and Support Transference of Skills from K-12 to Postsecondary

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Introduction

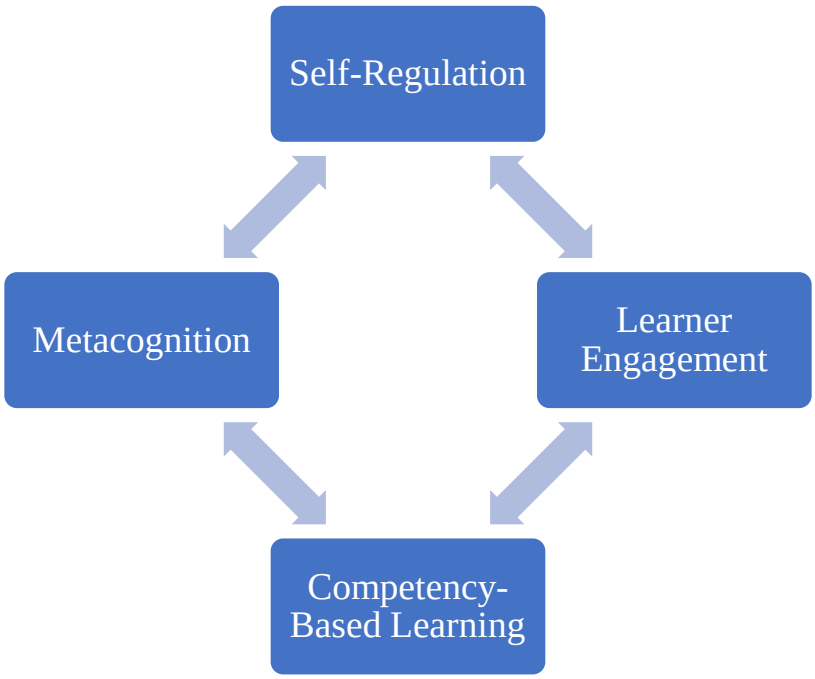
Over time, people have theorized education in different ways for different people. For example, there was a time when female students were encouraged to pursue courses that prepared them for keeping the home while males were encouraged to enroll in courses that prepared them for occupations in manufacturing. There have been pockets of educational history where students with disabilities have been purposefully kept from rigorous educational experiences and those with more significant disabilities shunned from schools altogether. For students whose native language is not English, finding a place in public education has been a challenge and continues to be a focus of reform. Over time, legislation passed and policies implemented that aim to ensure *all* students have access to high quality educational experiences that prepare them for postsecondary options. Today, that preparation involves academic and social skills needed to be effective lifelong learners, regardless of a student's background or abilities.

As educators and educational institutions, we are charged with preparing students for their postsecondary endeavors. Whether a student intends to enter the labor market immediately after high school, attend a four-year college, or enroll in a vocational preparation program, students are intended to leave high school with the skills needed to pursue their goals. The transition from high school to the postsecondary setting requires a transference and adaptation of mastered skills. If students are to succeed with the skills they learn in K–12 education, they must be able to transfer and adapt those skills into adulthood. Empowered students who take ownership of their learning processes can make meaning of any educational experience and situate it in their individual contextual fabric of existing knowledge.

Learning Ownership

Learning Ownership is the process by which learners dynamically participate in the learning process in such a way that they understand the context, purpose, and application of content learned. The learner does not rely solely on the instructor, curriculum, or content to make learning meaningful. Instead, the learner situates content in their existing framework and goal structure. Once a learner feels ownership over their educational processes, they are empowered to customize each learning experience to serve both their immediate and future educational goals. The skills and habits required for learning ownership are quite versatile and can be applied to any educational environment. This can include academic endeavors, social situations, and discrete skill development in K–12, postsecondary, and labor market settings. Learning Ownership is a combination of four educational mechanisms: self-regulation, learner engagement, competency-based learning, metacognition (Figure #1). These educational mechanisms have a symbiotic relationship where together they can accomplish more than each individually.

Figure #1. Learning Ownership Framework

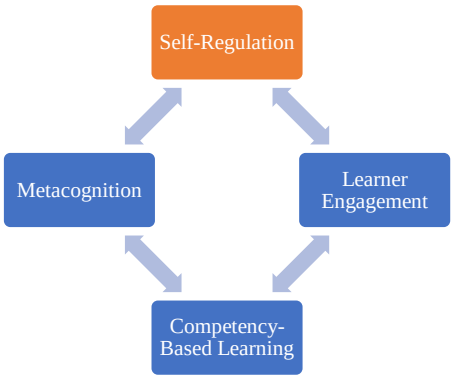


Too often, educational strategies and programs are siloed and separated from one another. The Learning Ownership construct is based on the concept that the four components are more effective when intentionally combined than when they each are addressed in isolation. Furthermore, the overall concept of Learning Ownership need not overhaul or replace programs. Instead, the Framework is intended to be a lens through which we view and implement existing programs.

Haywood (2004) calls for new approaches to education that include an emphasis on systematic and transferable thinking processes. This requires that students know how to adopt new knowledge into existing frameworks and transfer that new understanding to novel environments as they are encountered. This transference of skills and understanding is essential to success in postsecondary environments. The Learning Ownership framework is a way to ensure students have the skills necessary to thrive and succeed throughout their lifetime of learning.

This framework combines four mechanisms that support education from K–12 to the labor market. Although each of these educational mechanisms are critical to productive learning experiences, together they allow a learner to engage more meaningfully in in their unique educational process. The Learning Ownership construct is multidimensional and can be

supported by empowering learners and supporting teachers to hone these specific skills. In what follows, each component of the Learning Ownership Framework is described. Justifications are provided for how each mechanism can support the transference of skills to postsecondary settings. Examples of evidence-based practices and programs are also provided. This work concludes with recommendations regarding how the Learning Ownership Framework can be applied to existing practices to enhance programming and skill transference for learners of all ages.



Self-Regulation

Educating our students is a complicated process involving multiple levels of governance and effort. States enforce accountability measures while districts facilitate professional development and policies for daily interactions. Schools create learning environments and teachers deliver content with well-developed instructional strategies. At the culmination of this complex educational process are students. Students use strategies to plan, regulate, and monitor their own cognition and behaviors during learning experiences. This process, known as self-regulation, is how students motivate and pace themselves when learning new content (Pintrich, 1999).

Planning, monitoring, and regulating can happen almost simultaneously with practice or as explicit steps when learning how to become a self-regulated learner. The planning phase includes students setting goals and analyzing problems prior to engaging in specific tasks. For example, when beginning to read a complex text to conduct a science experiment, a self-regulated learner will preview the text and the expectations to identify goals prior to engaging in the task. Monitoring requires a student to actively analyze their own understanding of content. For example, in a job training scenario, a learner may complete a task with supervisory guidance, while concurrently self-evaluating their mastery of the skill and ability to complete it independently in the future. Regulation combines the goals defined in the planning stage and the monitoring process to help a student meet the learning target (Pintrich, 1999).

Self-regulated learning "mediates the relations between learner characteristics, context, and performance." (Greene & Azevedo, 2007, p. 335). Students control their learning and associated learning behaviors. They set educational goals based on their skills and environment, with or without their conscious understanding of this internal process. Within that process is an appraisal of how much time and effort to invest in each learning task (Dweck, 1986). The control a student has over their learning can be a powerful tool in enhancing their efficacy in the educational process. An understanding of that control is what supports and builds effective self-regulation. Calling attention to the components of self-regulation and making the process intentional can increase student achievement (de Bruijn-Smolders, Timmers, Gawke, Schoonman, & Born, 2016). Self-regulation allows a student to understand where they are on the path towards a goal and make adjustments as needed, based on an evaluation of their own understanding.

Transference to postsecondary

The majority of research regarding self-regulated learning shows a positive relationship with learning outcomes. Strengthening self-regulation processes also enhances transference of skills to improve later outcomes (de Bruijn-Smolders, Timmers, Gawke, Schoonman, & Born, 2016). Self-regulated learners are more successful at transferring skills gained in school-based learning environments to less structured environments, like the workplace (Sitzmann & Ely, 2011). However, when reflecting on their transition from high school to college, students report that they had low levels of self-regulation and lacked the basic study and time management skills to be successful (Steiner, 2016). As a strong predictor in the transference of skills from one environment to another, it is important that students leave high school with well-developed self-regulation.

Learning in informal settings requires higher developed self-regulation than in formal educational settings (Enos, Kehrhahn & Bell 2003). For instance, when solving problems or addressing issues in the workplace, employees must first self-identify the gaps in knowledge and work to close them with the resources available. An employee may need to search the Internet or speak to multiple co-workers to find information and evaluate its accuracy and utility (Sitzmann & Ely, 2011). In addition, goals in the labor market are often less clear for an employee than those presented in school. This requires an employee to have a keen sense of direction and purpose to be successful. Furthermore, employees are balancing the demands of multiple goals at any single time, including their own personal goals and those of their co-workers and employer. Building self-regulation skills in students will support their success in navigating these more complex scenarios in the workplace.

Self-regulation is exceptionally important when engaging in virtual learning platforms. The use of Massive Open Online Courses (MOOCs) has increased over time. MOOCs are regularly a part of both K–12, postsecondary, and job-based learning. A self-regulated learner is more adept at using the technology to engage in learning, while also learning about that technology and how to use it to meet individual educational goals (O'Brien, Forte, Mackey, Jacobson, 2017). If participants can make a plan to address content and pursue course milestones at an appropriate pace, they are more likely to be successful. Self-regulated learners can also explore the utility of the technology itself to better understand how it can support their own progress.

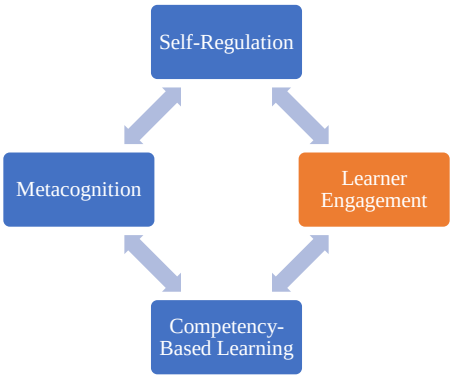
Evidence-based practices

The evidence supporting a positive association between self-regulation skills and student outcomes is abundant (de Bruijn-Smolders, Timmers, Gawke, Schoonman, & Born, 2016), but how can we teach students the skills they need to be proficient at self-regulation in all learning environments? For many students, it is not until after the first college exam or work training program that they realize the need for improved strategies for success. The Strategy Project (Steiner, 2016) shows positive impacts on student outcomes through increasing self-regulation skills in students new to college.

The Strategy Project was a semester-long program that required students to complete the planning, monitoring, and evaluating steps to build self-regulation as individual assignment. As a part of the Strategy Project intervention, students learned about self-regulation in a classroom setting through instructor modeling, discussion, and practice. Themes from interview data collected at the conclusion of the Strategy Project showed that students experienced increased test grades and reported long-term changes in their study habits and time-management skills (Steiner, 2016). Although created for first semester college students enrolled in a "learning-to-learn" seminar, the Strategy Project can be altered to fit varying needs of postsecondary and upper grade students and/or specific content areas. Furthermore, the modeling and practice strategies can be applied to students at all grade levels.

Although student behavior and habits are important targets of an intervention aimed at improving self-regulation, teachers also play an important role. Teachers who are aware of a student's emotional state can provide timely and supportive feedback to engage students in the learning and self-regulation processes. When students are made aware of their emotions through teacher guidance their motivation and self-regulation increases (Arguedas, Daradoumis, & Xhafa, 2016). Teachers can support the development of self-regulated learners by understanding emotional responses of students and responding appropriately.

One study analyzed the managerial proficiency of high-level employees at a 100-year old company. Enos, Kehrhahn, and Bell (2003) find that quality leadership is primarily an informal social learning process. Further analysis showed that skills learned informally were more likely to be transferred to the employee's official duties than those tasks learned in a formal setting (i.e., job training, college classes). The transference of these skills is made possible in part by the ability for the employee to self-regulate their learning process across settings (Enos, Kehrhahn & Bell, 2003). Although these findings do not point to a specific mechanism for teaching self-regulation, they illuminate the need to teach students the value of informal learning opportunities. Educational programs that emphasize the importance of self-regulation in *all* types of learning situations will be beneficial for students.



Learner Engagement

Learner engagement can be broadly defined as the mediator between the antecedents and the outcomes of an individual student (Lam, et al. 2014). Those antecedents can include a student's enjoyment of learning, classroom climate, interest in content, or even physical factors like level of hunger or tiredness. Outcomes can include student achievement, attendance, peer interactions, and mastery of specific skills in the workplace. Lam et al (2014) created a construct of student engagement that includes affective, behavioral, and cognitive dimensions. The affective dimension includes a student's general regard for learning, while behavioral engagement is defined as a student's active engagement in learning and/or extracurricular activities. Finally, cognitive engagement refers to a student's willingness to participate in more complex cognitive processing and retain the material (Lam et al, 2014). The framework created by Lam et al. helps more clearly define the multi-faceted nature of student engagement.

The National Survey of Student Engagement (NSSE) conceptualizes student engagement as more than the effort a student invests in educational activities. In addition, the NSSE considers the effort and resources invested by an institution to increase student engagement. These investments, by students and the institution, combine to create a more accurate analysis of student engagement (National Survey of Student Engagement).

The perceived value of learning tasks and the related outcomes can impact a student's willingness to engage in challenging tasks (Pintrich, 1999). Some learning tasks can feel exceptionally difficult and irrelevant leading to lower levels of student engagement. However, if contextualized as essential academic and cognitive skills that transfer to other realms of education, there may be less reluctance and more engagement in challenging learning tasks. Over time and through experience, a student's goal orientation may also change. Students may understand more education and professional trajectories and become interested in different pathways. Understanding the context and potential value of learning tasks allows students to recall those experiences when their path shifts (Pintrich, 1999). As a student continues to understand how learning activities build the ability to learn new things, student engagement levels are likely to change.

Although increased engagement in the educational process is central goal, we must also consider the alternative, disengagement. Academic disengagement is a "multi-faceted, complex yet fluid state, which has a combination of behavioural, emotional and cognitive domains."

(Chipchase et al, 2017, p. 35). Spotting the indicators of disengagement can be as equally important to learner success as increasing engagement. Instructors at all levels must be aware of disengagement and react promptly to support students. For example, if a student does not attend class, fails to complete assignments, or does not collaborate with other students, instructors can react by asking probing questions and recommending institutional supports to eliminate barriers to engagement. These barriers can be intrinsic in source (e.g., lack of motivation, low interest level in content ...) or extrinsic (e.g., financial burdens, personal safety, or food insecurity). Identifying these indicators and understanding the source of disengagement can help an instructor know where to turn for student support. (Chipchase et al, 2017).

Transference to postsecondary

Haywood (2004) described the goal of learning as the ability to learn more. When thinking about the transference of knowledge from one stage to the next, like the K-12 setting to the labor market, the ability to "learn more" is an essential skillset that requires mindful engagement. Engagement in the learning process can be supported by an increased understanding of the context and purpose of specific content. Learner engagement is about the autonomy students have over their learning pathway and their understanding of specific content (Niemiec & Ryan, 2009). The process of understanding context can be instructor or learner driven; however, as learning autonomy increases in the upper grades and postsecondary realm, it is essential that the learner take responsibility for contextualizing content into existing knowledge frameworks and future goals.

As students transition from the K-12 setting to the postsecondary education and workplace settings, it is important that educators meet them where they are. Learners of all ages are flocking to social media as a means to engage with one another and learn new content. Requiring learners to distill content specific knowledge into a readable social media post is effective in increasing learner engagement (Zinger & Sinclair, 2013). Sharing information in this way can be both a tangible indicator of student engagement and a product of meaningful engagement. For example, individuals in the workplace may be required to attend external training opportunities, synthesize that information with workplace expectations and present to co-workers vie messaging or website applications. In the postsecondary educational setting, social media posts can be an opportunity to engage directly with the producers of information about which they are learning in the classroom. Conveying to students the utility of engagement as they exit the K-12 setting can set the stage for future engagement success.

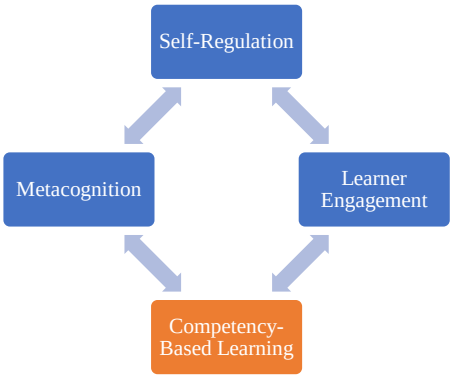
Evidence-based practices

It is difficult to disentangle between those behaviors that *indicate* engagement and those behaviors that *facilitate* student engagement. The distinction between how we identify student engagement and support student engagement can be challenging. (Skinner, Furrer, Marchand, & Kindermann, 2008). While there are many measures to assess and monitor student engagement, most measures are from the perspective of the teacher or an objective observer. This can lead to inaccurate appraisals of student engagement. Students may be engaged in an activity but not outwardly show the behaviors that an observer considers to be indicative of engagement. On the

other hand, a student may appear to be engaged because they are exhibiting behaviors that are considered indicative of engagement. However, that student may not be cognitively engaged in the activity, but merely going through the motions. The Classroom Climate Index captures the student's perspective (Kearney, Smith & Maika, 2016). Tools like the Classroom Climate Index can help teachers and administrators understand how truly engaged students are and identify factors that increase active engagement.

Teachers play an integral role in the level of student engagement and may not need to stray far from current methods to increase learning engagement. For example, the Universal Design for Learning (UDL) framework has long been associated with supports for students with special needs. The UDL framework is a key component in educational settings and instructional strategies that support the learning process of students with varying abilities. The UDL framework has become commonplace among teachers and teacher preparation programs. Teachers who adopt a UDL framework can also increase rates of student engagement for learners of all abilities. (Cunningham, Huchting, Fogarty & Graf, 2017). Teachers need not throw out tried and true instructional methods, like UDL, to increase learner engagement. Instead, instructors can be mindful of the impact of strategies like UDL to reach all learners *and* increase engagement.

The NSSE defines engagement as a combination of student behavior and institutional investment. Although much of the research focuses on how to change student behavior, the institutional investment cannot be ignored. For example, a study of minority commuter students in the CUNY system found that belonging to fraternity or sorority, interacting with faculty often, and participating in co-curricular activities are each associated with increased levels of learner engagement (Yearwood & Jones, 2012). These activities do not rely solely on a student's willingness to participate, but also an institution's ability to invest in and promote a culture of learner engagement through these types of activities. Institutional investments can include student engagement as a potential outcome of their program, activity, and outreach initiatives.



Competency-Based Learning

Education today does not focus on students learning only specific facts and figures. Instead, education focuses on preparing students for a lifetime of learning. In part, this is due to the ever-changing nature and availability of information. For example, some science or social science concepts taught in school may become quickly outdated and replaced with new findings in the respective fields. The goal of education has adapted to make students lifelong learners, not simply retainers of explicit information. Competency-based programming focuses on preparing students with the competencies needed for lifelong learning and knowledge adaptation (Makulova, et al, 2015). It is important that we focus on building the strategic competencies required for learning and applying knowledge throughout one's lifetime. Traditionally, students spend a specified amount of time in a course as they progress through content, regardless of their prior knowledge or mastery of content along the way. In competency-based education, students are able to advance to the next topic/level once they demonstrate mastery, regardless of time spent in the course (Mayeshiba, Jansen, & Mihlbauer, 2018).

Competency-based educational programs were previously thought to be expensive given the need to accommodate individual student progressions through material; however, the advent of technology in all levels of learning is viewed as an essential ingredient in the wider use of competency-based learning for students (Nodine & Johnstone, 2015). Technology has provided a new level of autonomy for learners at all levels. At the same time, technology gives instructors the ability to curtail learning experiences based on student needs and interests. The ability for students to progress through material at their pace while a teacher monitors and collects fine grained performance data is an exciting advancement in education. When considering educational programmatic or infrastructure investments to support competency-based programming, the utility of technology must be considered and carefully weighed.

Although competency-based learning programs can require a paradigm shift, it can also consist of a series of adjustments to bring elements of flexibility and self-pacing autonomy to the learning environment. When teaching mathematics, for example, a teacher can incorporate various media and web resources to ensure that students are able to progress at their own pace and master the essential competencies to move forward (Sidabutar, 2016). Although the effective

curation of quality resources requires a trained and thoughtful professional, there are a plethora of resources available for teachers to begin making changes in their classrooms, and focus on competencies, as opposed to discrete skills.

Transference to postsecondary

A frequent concern with the implementation of competency-based education is that students are potentially missing the opportunity to grow critical skills, especially as they transition from K-12 to postsecondary opportunities. Competency-based education allows students to progress through content at their own pace by demonstrating mastery of certain skills, yet there is growing concern that the lack of time spent in a course leads to a weakening of essential higher-level skills. However, when comparing the critical thinking skills of students who participated in a competency-based structured course and a traditional course, students in the competency-based course performed significantly better (Mayeshiba, Jansen, & Mihlbauer, 2018). These results are a clear signal that competency-based instruction does not come at the peril of critical thinking skills. Instead, it can be an asset to more thoroughly develop the whole student as they transition to the workforce or college.

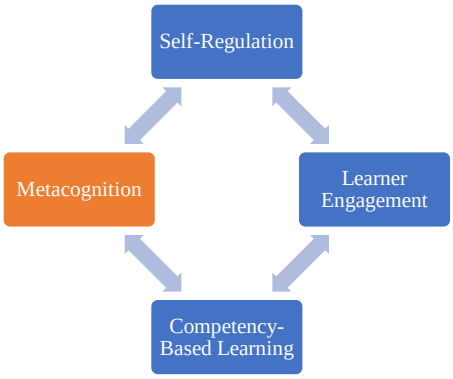
Programs that allow employees to progress through training at their pace, give employees the essential flexibility to balance the personal and professional demands. Many training programs, particularly in the manufacturing or gas/oil business sector, do not provide a salary or training stipend. This makes the option of additional training to advance one's career into a choice between income now or the potential for higher income later. A competency-based program allows individuals to move through training programs at their own pace and meet the needs of their families, employers, and personal career goals (Yasinski, 2014). With programs like these becoming more and more prevalent in the workplace, it is essential that our students leave the K-12 setting with the ability to self-pace their learning through competency-based learning programs.

Evidence-based practices

Competency-based learning has gained popularity in the United States and Europe, yet some worry that we are losing sight of how learners holistically exist outside of the classroom. For example, a strong focus on skill mastery in the classroom may leave out important parts of the learner experience, like applying those lessons to their own environment, thriving socially, and adapting to novel situations (Lozano, Boni, Peris & Hueso, 2012). Teachers and program facilitators must be wary of overemphasizing the importance of competencies and keep focus on educating the whole learner.

The balance of competency-based learning programs with more traditional pedagogies can be particularly challenging for teachers. Teachers can feel like they are choosing between the “old and the new” without any room in the middle; however, a blending of methods has shown to support holistic student development (Byrne, Downey & Souza, 2013). Teachers who may be resistant to change should feel comforted that competency-based learning can be an excellent complement to existing pedogical choices.

When analyzing the impact of a competency-based educational program, it is important to understand the students' perspectives. For example, in a postsecondary setting, students' perception of job satisfaction is an important outcome to consider when evaluating any programming decision. Another example is the perceived alignment between required competencies in a training program and the job skills needed to be successful (Gaudet, Annulis & Kmiec, 2008). When decisionmakers are tasked with determining the best course of action, they must consider the perspective of students, especially when making sweeping programmatic shifts like implementing an institution-wide competency-based program. It is important to remember that a competency-based educational program, like any instructional method, should be continually evaluated and reflected upon to ensure it is meeting the needs of students. Institutions must be mindful about the implementation and utility of a competency-based program to ensure it continues to meet its intended purposes (Downey, Byrne & Souza, 2013).



Metacognition

At the most basic level, metacognition can be defined as thinking about thinking (Nazarieh, 2016). Flavell (1979) defined two types of metacognition: metacognitive regulations and metacognitive knowledge. In education, the concept of metacognitive knowledge is most applicable. This concept is used to describe how an individual thinks about their understanding of a particular concept (Flavell, 2979). For example, when a student encounters new and challenging material, they may reflect on how they have learned information like this in the past, how this current information fits into existing schemas, and under what conditions he/she will learn best. This multi-faceted process occurs almost instantly and at times, without conscious realization by the learner. Calling out these metacognitive strategies and making students aware of their value is how we increase the use of metacognitive strategies to support learning (Nazarieh, 2016).

Students use metacognition regardless of the subject matter, to comprehend new material. By cognitively being aware of new content students encounter, they connect new content with previously learned skills or interests. Metacognition includes knowledge derived from making those important connections between what a student already knows and what a student wants to know during the learning process (Channa, Nordin, Siming, Chandio, & Koondher, 2015). For example, as a student learns about the history of the Civil Rights Movement in the United States, they may wonder about the specific role of women or religion. They may also remember facts and figures they previously learned about that time in history and compare it to new content encountered. This metacognitive process connects newly encountered information with previously learned information and future interests and ideas.

Metacognitive strategies are not the one-size-fits all solution to learning. The nature of metacognition makes each individual student's metacognitive process and perception unique. However, teachers and software programs can provide personalized metacognitive prompts to support skills development. (Hsu, Yen, Chang, Wang, & Chen, 2016). Programs that encourage students to employ metacognitive strategies can improve students' reading and comprehension skills (Channa, Nordin, Siming, Chandio, & Koondher, 2015). Programs should monitor and

evaluate strategies frequently to ensure that they are promoting metacognitive development for all students.

Metacognition is also important for students with disabilities. Students diagnosed with a specific learning disability exhibit lower levels of metacognition than their typically developing peers, which is strongly associated with a lower self-efficacy rating (Mastrothanaais, Kalianou, Katsifi, Zouganali, 2018; Girli & Öztürk, 2017). It is worth noting however, that students who are struggling should not be assumed to lack metacognitive skills. For instance, struggling readers have been found to employ more metacognitive strategies than their higher performing peers (Corkett, Parrila & Hein, 2006). Albeit at a less rigorous level, students may use metacognition as a coping strategy to progress through difficult tasks. Understanding how effectively a student employs metacognitive strategies is helpful information for teachers.

Transference to postsecondary

The effort to strengthen metacognitive strategies does not end at the K-12 transition. In fact, it may be just beginning. At the postsecondary level, students can be educated about learning theories that are most applicable to them through a series of information sessions and self-assessments. In one program students were instructed on the use of "note-taking, task analysis, time management, complex thinking, planning for writing, use of assistive technology for writing, editing tools and resources, techniques for reading textbooks and articles, research approaches, memory-improvement skills, test-taking strategies, and others" (Burchard & Swerdzewski, 2009, p. 21). The course integrated assignments that required students to reflect on self-assessments and articulate how they applied learning strategies. Students were also required to write detailed goals and list learning strengths and weaknesses at multiple points during the course. A pre- and post-test of metacognitive strategies showed significant and large improvements for students with and without disabilities (Burchard & Swerdzewski, 2009). Programs like this can usher students into the postsecondary world and prepare them for lifelong learning.

The information available to teachers and lifelong learners is constantly changing as a function of technology and advances in various fields of study. Although it is impossible to predict the specific information our students will need in order to be successful, teachers must continually change their role to meet those changing demands. Teaching students to employ metacognition is an example of how instructors are taking on new roles to meet the needs of the changing educational landscape (Yildiz & Akdag, 2017). As students progress in schooling and enter into either postsecondary education or the workforce, the cognitive load increases as compared to the K-12 setting. Students in elementary and middle school may passively learning content and social information. However, as students advance in coursework, they must employ advanced metacognitive strategies and actively participate in their learning to be successful (Kitsantas, 2002).

Evidence-based practices

Metacognition can support a wide range of skills. For example, when working through linguistically challenging mathematic word problems, students who have had explicit training in the use of metacognitive strategies outperform those who did not (Vula, Avdyli, Berisha, Saqipi, & Elezi, 2017; Fuchs et al., 2006). Students were able to notice their cognition when working through the challenging linguistic elements and pivot their thinking to make sense of mathematic word problems. Concurrently, students using metacognitive strategies were able to mindfully pull out important mathematical information needed to calculate a solution. (Vula, Avdyli, Berisha, Saqipi, & Elezi, 2017).

Metacognition requires students to be cognitively engaged in what they are learning, including both the content and the process of learning itself. An example of an effective strategy for building metacognition and deepening one's understanding is the Construction-Deconstruction Connectionist (CDC) Model (Pang & Ross, 2010). This activity framework is best suited for students in the upper-grades or postsecondary environments and is most useful when working with more theoretical or complex ethical situations. The use of the CDC model led to increased use of metacognitive strategies at the individual and small group levels (Pang & Ross, 2010).

The four steps in this process are as follows, and can be done by individual students, small groups, or as a class activity:

Construction:	A body of information is introduced and a general definition of the concept/theory is constructed by students using pieces of information from the whole body
Deconstruction:	Students identify the key points or evidence from the body of information that support the creation of their definition
Connection:	Students connect their deconstructed key points and evidence to the larger theory or body of information
Recreation:	Students present the connections made in a format that suits student needs and course requirements

Conclusion

Educational programming must simultaneously meet the current and future educational and social needs of students. Teachers work to improve their own instructional practices while balancing the adoption of new initiatives and paradigms. Researchers analyze programs to determine effectiveness and study the educational environment to understand how students learn and what they need to be successful. All the while, students and adult learners are at the center of this multi-faceted initiative we call *education*. These interwoven components of the educational process all impact learners. Unfortunately, there are times when information does not flow seamlessly across all bodies of education. There are moments when we must pause and scan the academic literature to synthesize information about practices and policies. This synthesis gives us an opportunity to combine information from across the field in an effort to enhance educational experiences. The Learning Ownership Framework is the product of a review of literature about the educational mechanisms that support lifelong student learning.

The nature of scholarly research of education is to focus on a specific phenomenon, isolate it as best as possible, and come away with a more developed understanding of how it operates in the realm of education. In the same way, research from across the globe emphasizes the individual components of the Learning Ownership Framework. Each component has been isolated and evaluated in silos to understand its respective utility in advancing educational programming for all learners. This work distills information from the literature about each component including transference of skills to postsecondary environments and evidence-based practices associated with the advancement of each skill. In practice however, each of these components do not exist on their own. Instead these interact within each learner and across learning environments. The Learning Ownership Framework is a way to conceptualize and bring to the forefront the interaction of all four educational mechanisms.

The components of the Learning Ownership Framework overlap both theoretically and in practice. For example, metacognition and self-regulation are both based on an awareness of one's cognition within the learning process. Competency-based learning programs increase learner engagement and require self-regulation, while learner engagement can be increased by employing metacognitive strategies. These four components are infrequently cross-referenced in the literature, but perpetually intertwined in practice. Although the functionality and importance of each component is well documented in the literature, their interplay is less so. This work synthesizes decades of research to provide teachers, decisionmakers, and grant programs with a clear framework to reflect on their instructional and programmatic choices. Although this work does not outline specific steps to ensure programs are incorporating all components of the Framework, it does provide evidence-based practices that support each component and clear connections between K-12 and the postsecondary setting. This Framework gives decisionmakers and stakeholders a lens through which they can view existing programs or evaluate new programs to support the lifelong learning of students.

Future research is needed to provide stakeholders with reliable ways to monitor and evaluate their ability to apply the Learning Ownership Framework. Teachers and administrators would benefit from having efficient and accurate ways to monitor classrooms and instructional

practices to determine if this set of skills is being addressed when appropriate throughout the learning process. In addition, further research is needed around how teachers and administrators can adopt the Learning Ownership Framework as a lens through which they see existing educational programs. The Framework is not intended to replace existing programs or negate evidence-based instructional methods. However, it can be applied to current practices to enhance efficacy. Research to guide instructional coaches in this process may help teachers incorporate the Framework in their instructional planning and delivery.

Additional research is also needed to understand how this Framework can support individuals in the workplace and in vocational and college programs. Learning does not end at high school graduation, yet our efforts to support learning seem to shift drastically after this line in time. It is important that we continue to push the workplace and college programs to incorporate supports and explicit training around the utility and impact of the combination of skills in the Framework. Organizations that seek to support innovative approaches may benefit from using the Learning Ownership Framework when considering programs in which to invest.

Learning at any stage is exciting and challenging, yet the transition from K-12 to the postsecondary world is particularly so. Students move from classrooms where things are programmed for them and because of them to a world where they are the programmers of their own educational pathway. Our charge as educators, educational institutions, and organizations that seek to invest in educational advancement is to improve educational experiences for all students. During this particularly challenging time, it is important that we use concepts like the Learning Ownership Framework to ensure that we are preparing students for lifelong learning in all areas, regardless of their selected pathway.

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