

# Applying Social Cognitive Theory to Academic Advising to Assess Student Learning Outcomes

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*Review of social cognitive theory constructs of self-efficacy and self-regulated learning is applied to academic advising for the purposes of assessing student learning. A brief overview of the history of student learning outcomes in higher education is followed by an explanation of self-efficacy and self-regulated learning constructs and how they can be applied to academic advising. The article concludes with the development of a model for assessing student learning outcomes in academic advising using these theoretical constructs.*

**KEYWORDS:** advising approaches, Albert Bandura, educational planning, self-efficacy, self-regulated learning, tools for advising

All six regional accrediting associations (Middle States, New England, North Central, Northwest, Southern, and Western) currently require colleges and universities to demonstrate evidence of student learning through measurable outcomes (U.S. Department of Education, n.d.). To accomplish this goal, the leadership of each college or university discipline is responsible for creating student learning outcomes, which identify the learning that students should know, demonstrate, and appreciate upon completing interventions. The student learning outcome we chose to illustrate this concept is as follows: "Students should be able to recognize, choose, and create their own academic plans that successfully navigate them through college." Although presented in a compound sentence, the concept represents three separate student-learning outcomes: Students are able to a) recognize, b) choose, and c) create their own academic plans that successfully navigate them through college. For the purposes of this paper, we use the compound statement.

We use social cognitive theory for assessing this learning outcome via two variables: self-efficacy beliefs and self-regulated learning in academic planning. *Self-efficacy beliefs* refers to one's confidence in engaging in specific activities that contribute toward progress to one's goals (Bandura, 1997). *Self-regulated learning* refers to the process of learners actively taking control and responsibility for their learning. Those who use self-regulated learning

employ a variety of strategies that aid in learning and applying the content (Zimmerman, 2000).

We chose to apply social cognitive theory, and specifically the concepts of self-efficacy and self-regulated learning, because of the rich research base demonstrating the predictive impact of self-efficacy beliefs on exercising control over choices and pursuits of one's goals in life. For over 30 years, extensive research has shown the effects of self-efficacy beliefs on a wide variety of human activity. Some professional literature shows that perceived self-efficacy has been successfully applied to academics (Schunk, 1991, 1996), career development (Betz, 2006; Betz & Hackett, 1981; Betz, Klein, & Taylor, 1996; Betz & Schifano, 2000; Lent, 2005; Lent, Brown, & Hackett, 1994), health (Bandura, 1991, 1997; Bandura, Reese, & Adams, 1982; Bandura, Taylor, Williams, Mefford, & Barchas, 1985), and athletics (Bandura, 1997). Self-regulated learning has been fruitfully applied to education (Cleary & Zimmerman, 2004; Zimmerman, 2000) and athletics (Kitsantas & Zimmerman, 2002; Zimmerman & Kitsantas, 1996, 1997).

The compound student-learning outcome statement, "Students should be able to recognize, choose, and create their own academic plans that successfully navigate them through college," contains elements of both self-efficacy beliefs and self-regulated learning. For example, confidence in performing academic planning tasks at one level could be predictive of students engaging in performing academic planning tasks at a more complex level, demonstrating increased self-efficacy. Thus, self-efficacy beliefs could be used as a predictor of a change in academic planning behavior. Additionally, students' self-regulated learning skills could explain the learning mechanisms by which students acquired strategies for performing academic planning tasks with greater independence and sophistication.

Social cognitive theory constructs of self-efficacy and self-regulated learning have not yet been introduced in the academic advising literature. Judging from the multiple cases of beneficial research resulting from the application of social cognitive theory to numerous areas, we believe that the academic advising field could benefit from it as well. Because social cognitive theory explains

and predicts learned behaviors, it leads to valid and replicable research. If academic advising is to be viewed from the paradigm of teaching and learning, as NACADA promotes, then applying a motivation and learning theory to this setting should explain how the learning was gained and detail the conditions that produced these outcomes.

### Student Learning Outcomes in Higher Education

Historically, researchers on education focused on identifying the best teaching practices that brought about changes in learning (Huba & Freed, 2000; O'Banion, 1997). However, since the early 1970s, the outcomes-based education movement emphasized that educators identify the expected learned end product and then design curriculum and related assessment around this anticipated student learning rather than focusing primarily on teaching practices (Somerville, 2007). The focus shifted from teacher-to student-centered learning. Researchers sought to answer the following question: "Are students learning what was expected from the course?" To provide an answer, investigators must look at both the learning of the student and the teacher's methods used to improve the learning process. Within this historical context of current accreditation requirements, we utilize social cognitive theory to explain ways to assess student learning within the context of college academic advising.

### Academic Advising Literature

The NACADA Concept of Academic Advising (National Academic Advising Association [NACADA], 2006) strongly embraces the notion that academic advising is teaching. It consists of three major components: a) curriculum (the subject matter advising covers), b) pedagogy (the teaching and learning strategy methods used to convey the subject matter), and c) student learning outcomes (the student learning expected from academic advising) (Gordon, Habley, & Grites, 2008, p. 523; NACADA, 2006). The academic advising curriculum can cover topics ranging from academic and career educational planning, building campus community and social relationships, and developing lifelong learning strategies and capabilities. The pedagogy for teaching this content is based on effective teaching and learning strategies and the advisor's knowledge in educational teaching and learning theory. This knowledge would cover an advisor's comprehension for creating an intentional, structured learning environment that contains the intended student learning outcomes,

integrated plans and materials that facilitate this intended learning, and learning assessments for determining whether the students attained the intended learning.

Each institution of higher education needs to create unique student learning outcomes for academic advising and detail the knowledge a student should possess and be able to demonstrate upon completing academic advising interventions. By placing academic advising within this teaching and learning paradigm, the advising leadership can develop and measure student learning outcomes. This learning-oriented theoretical approach to academic advising is a fairly recent development (Hagen, 1994; Hagen & Jordan, 2008; Hemwall & Trachte, 1999, 2005; Lowenstein, 2005; Strommer, 1994).

From a theoretical and methodological perspective, since the 1970s, academic advising has largely been examined through student development theory. Baxter Magolda (1998, 2004), Chickering and Reiser (1993), Crookston (1972/1994/2009), and Perry (1970) were major proponents for academically advising students from a developmental and holistic perspective, which included advising about decision-making processes and moral, psychosocial, and cognitive development. Their research from this theoretical paradigm created a holistic perspective in which the learning phases are described in terms of student development and counter notions that advising should consist merely of a mechanical process limited to choosing courses. However, the perspective lacks theoretical specificity about the ways students learn within the academic advising setting. Without understanding the learning process, identifying the factors that encourage the desired learning is impossible.

Because of the major theoretical weakness of developmental advising, Hagen (1994), Hemwall and Trachte (1999, 2005), Lowenstein (2005), and Strommer (1994) advocated a learning theory paradigm for academic advising. The NACADA Concept of Academic Advising (NACADA, 2006) nicely summarized this learning perspective by placing academic advising squarely in the teaching and learning framework. A current call in the academic advising literature encourages the use of diverse theories from the social science fields to explain the teaching and learning processes within advising. "Advising is teaching" (Appleby, 2008, p. 85) is the guiding principle of NACADA.

Researchers and practitioners in the field have *license* to do this [bring diverse theories] because of the wide spectrum of their collec-

tive scholarly backgrounds and the *obligation* to search far and wide for theories because of the rich complexity of academic advising.... Academic advising cannot be performed or studied without theory. (Hagen & Jordan, 2008, pp. 18-19)

This summons from the professional literature to apply social science theories to academic advising inspired us to bring a highly sophisticated social learning and motivation theory to this subject area. Social cognitive theory (Bandura, 1986, 1997) describes in great detail the learning processes and subprocesses involved in purposeful goal-directed behavior and motivation.

### Bandura's Social Cognitive Theory

Albert Bandura's social cognitive theory (1986, 1997) is based on the assumption that people are purposeful, goal-directed beings who are primarily motivated through their beliefs of self-efficacy and outcome expectations stemming from their actions within specific social contexts. Social cognitive theory explains human agency through the interdependence of determinants using a three-point model called "triadic reciprocal causation" (Bandura, 1986). The model visually resembles a triangle with the following points interacting and mutually influencing each other: personal factors (P), which include cognitive, affective, and biological events; environment (E); and behavior (B).

In this transactional view of self and society, internal personal factors in the form of cognitive, affective, and biological events; behavior; and environmental events all operate as interacting determinants that influence each other bi-directionally. (Bandura, 1997, p. 6)

Bandura (1997, p. 228) identified three key processes within the personal factors (P) point of his model that have significant impact on human agency: a) self-efficacy beliefs, b) outcome expectations, and c) self-regulated learning. Human action is largely mediated through these self processes so that social environmental influences (E) mutually influence but only partially account for behavior (B). "The self is socially constituted, but, by exercising self-influence, individuals are partial contributors to what they become and do" (Bandura, 1997, p. 6).

### *Social Cognitive Theory Definitions*

To promote understanding, we define social cognitive theory self-efficacy beliefs, outcome expecta-

tations, and self-regulated learning. Additionally, both the structure and processes of self-regulated learning will be explained based on Zimmerman's (2000) works and applied to academic advising.

Self-efficacy beliefs constitute one major part of social cognitive theory and refer to one's confidence for engaging in specific activities that would lead to fulfillment of specific goals (Bandura, 1997). Research has shown that self-efficacy beliefs can help predict behaviors such as those related to whether one will engage, persevere, and accomplish one's goals (Bandura, 1997; Pajares, 1996). From an educational perspective, such beliefs certainly impact a student's educational performance (Pajares, 1996). Perceived self-efficacy is context specific, not a broad, generalized concept. Self-efficacy refers to a well-defined content area of knowledge and tasks required to accomplish the desired outcomes, but the many everyday life areas to which perceived self-efficacy could be applied and studied are unlimited.

For example, first-time freshmen entering a community college face a maximal array of course choices but often have minimal confidence in understanding the strategies needed to choose classes wisely. Students often express general goals (distal goals) for attending community college, such as earning an associate's degree, obtaining a good paying job or career upon graduating, or transferring to a university to earn a bachelor's degree. However, rarely do students understand, with confidence, specifically how to strategically reach their long-term educational goals or how to translate their distal goals into proximal goals through academic planning. Their self-efficacy in academic planning is minimal, and therefore, advisors have an opportunity to positively affect the self-efficacy beliefs of community college students who have clear long-term visions but unarticulated goals for bringing the outcomes to fruition.

*Outcome expectations* constitute another major cognitive, affective, and motivational variable that impacts one's choices (Bandura, 1997). They are the anticipated consequences one expects from engaging in a chosen behavior. Together, both self-efficacy beliefs and outcome expectations constitute the major *motivational* beliefs leading to action, performance, and outcomes.

It is because people see outcomes as contingent on the adequacy of their performance, and care about those outcomes, that they rely on efficacy beliefs in deciding which course of action to pursue and how long to pursue it....

In short, people take action when they hold efficacy beliefs and outcome expectations that make the effort seem worthwhile. They expect given actions to produce desired outcomes and believe that they can perform those actions. (Bandura, 1997, p. 24)

Looking at outcome expectations from the academic planning context, students judge some of the expected outcomes from attending and graduating college to include positioning themselves for obtaining a rewarding and fulfilling career with an excellent salary and numerous career options. Expected outcomes from academic advising should facilitate students' efficacy beliefs in their academic planning so that they engage in creating strategic plans for successfully navigating the higher education system, choosing courses needed for earning their degree, and obtaining their desired educational outcomes. From the student's perspective, outcome expectations stemming from academic planning mean that by completing chosen courses they earn their degree and the outcomes are accomplished. Course selection becomes meaningful within the larger context of the student's overall educational planning. One can predict that the more self-efficacious students become in performing academic planning tasks, the more confident and self-regulating they will become in fulfilling their expected outcomes for attending college.

Self-regulated learning "involves learners who proactively direct their behavior or strategies to achieve self-set goals. They also rely on affective, cognitive, motivational, and behavioral feedback to modify or adjust their strategies and behaviors when unable to initially attain their goals" (Cleary & Zimmerman, 2004, p. 538).

Zimmerman (2000) created a cyclical model that demonstrates the structure of self-regulation processes as discussed from social cognitive theory. Zimmerman viewed self-regulated learning as self-generated thoughts, feelings, and actions that individuals adapt through a three-step cycle that includes a) *forethought*, b) *performance*, and c) *self-reflection*.

*Forethought phase.* Forethought constitutes the thinking and planning phase. Within the forethought phase are subprocesses of goal setting and strategic planning, as well as several motivational beliefs such as self-efficacy and outcome expectations. Goal setting involves deciding upon the goal for learning, and strategic planning involves identifying the optimal learning strategies used to reach the goal (Cleary & Zimmerman, 2004).

The motivational beliefs of self-efficacy and outcome expectations become incorporated in the forethought phase. Research on this stage shows that self-efficacy beliefs have significant predictive impact on behaviors such as choice of activities, effort, and persistence (Bandura, 1997; Zimmerman, 1989).

*Performance phase.* The forethought phase influences one's approach to the performance control phase and the subprocesses of *self-control* and *self-observation*. During the performance phase, the individual uses self-control to enhance learning performance by self-instruction, attention focusing, and task strategies. Self-observation is another performance control process where one monitors her or his own performance. Learners implement their strategic plans for learning in the performance phase (Cleary & Zimmerman, 2004; Zimmerman, 2000).

*Self-reflection phase.* The self-reflection phase involves evaluating one's performance, interpreting effectiveness of performance, and making any adjustments to the learning process based upon comparative standards. These undertakings constitute the two subprocesses of *self-judgment* and *self-reaction* (Cleary & Zimmerman, 2004; Zimmerman, 2000). Based upon one's conclusions from the self-reflection phase, new information can be cycled into the next forethought phase cycle, influencing cognitions, affect, behavior, and motivation. By cycling through the self-regulated learning phases of forethought, performance, and self-reflection, advisees learn new and more complex academic planning strategies and gain greater sophistication of self-regulated planning with accompanying increases in self-efficacy.

### **Building Self-efficacy Beliefs and Self-regulated Learning Skill Levels**

Academic advisors use interventions to teach a variety of academic planning strategies. To facilitate student confidence in their self-regulation for academic planning, academic advising interventions should include learning sources that build self-efficacy, such as those that Bandura (1986, 1997) identified through a) observing models (vicarious experience), b) gaining experience of doing (enactive mastery), c) receiving encouragement (verbal persuasion), and d) reducing avoidance anxiety (physiological and affective states). In other words, by incorporating these methods into one's teaching or academic advising practice, educators structure the learning experience to facilitate increased student self-efficacy. Personal mastery experiences,

which involve one's accomplishments, are the strongest sources of enhanced perceptions of personal efficacy (Bandura, 1997). "The stronger the students' perceived efficacy to manage their own learning, the higher their aspirations and accomplishments" (Bandura, 2006, p. 11).

#### *Levels of Self-regulated Learning Skill Development*

Self-regulated learning skills develop over time when regularly and deliberately practiced under conditions that incorporate Bandura's four sources for building self-efficacy. First, through observing a proficient model and practicing the modeled behaviors under close supervision, receiving encouragement and reducing anxiety during practice, the student establishes initial learning.

Through independent practice and feedback, self-regulatory skill levels increase so one can independently apply these skills to changing and variable circumstances. Zimmerman (2000) and colleagues (Schunk & Zimmerman, 1997; Zimmerman and Kitsantas, 1997) elaborated upon four sequential self-regulated learning skill levels. We applied Bandura's four sources for building self-efficacy to Zimmerman's model of self-regulated learning skill development using examples from academic planning.

*Level 1—Source for building self-efficacy: vicarious experience.* In the first level of self-regulated learning, observational learning (vicarious experience) from a proficient model builds the student's knowledge and understanding. During the academic advising session, students observe the academic advisor verbally explaining and visually showing an academic planning strategy. For example, with a new student who does not know anything about educational patterns, the academic advisor shows and explains the general education as well as major course patterns and how they are used.

*Level 2—Source for building self-efficacy: vicarious experience, enactive mastery, verbal persuasion, and physiological/affective states.* Based upon the foundation of vicarious experience, the second level of self-regulated learning—emulation—the student practices the modeled behaviors with the goal of building proficiency under the tutelage of an academic advisor. For example, students can correctly identify general education and major patterns. They receive immediate feedback and correction on their understanding from the academic advisor. Such advisor responses provide the student with confirmation and positive encouragement.

*Level 3—Source for building self-efficacy: enactive mastery, verbal persuasion, and physiological/affective states.* Students continue mastery of skills through the third level of self-regulated learning. They develop self-control through independent practice, using self-evaluative feedback based on internalized performance standards. For example, over time students self-reflect upon their choices, evaluate their performance, and engage in independent academic planning. Such activities could include reading course descriptions, deliberately choosing general education and major courses that meet degree requirements, or building an educational plan. When requested, the academic advisor provides feedback.

*Level 4—Source for building self-efficacy: enactive mastery.* During the fourth level of self-regulated learning, the student demonstrates self-regulation proficiency by applying the knowledge and skills independently across many fluid and changing situations, such as scheduled courses not offered or closed or by changing majors that require a different series of courses than the student has completed or planned on taking. Students functioning at a self-regulated proficiency level recognize the major course patterns and can apply them to choosing substitute courses or appropriate courses to a new major. Students functioning at this self-regulated learning level possess the problem-solving skills to independently make selections with little or no feedback from the academic advisor. "Self-regulation models empower students to actively engage in the problem-solving process, thereby increasing their autonomy and personal agency over their learning methods" (Cleary & Zimmerman, 2004, p. 540). "When students believe that they can perform a task in a proficient manner, they will become more engaged in the activity, work harder, and sustain high levels of effort even when obstacles are encountered" (Zimmerman & Cleary, 2006, p. 51).

By purposefully integrating these four sources for building self-efficacy into academic advising interventions, advisors encourage students to cycle through the forethought, performance, and self-reflection phases of self-regulation. The advisors strive to help students behaviorally demonstrate increased levels of self-efficacy and self-regulated learning in complex academic planning as a learned outcome.

Training students in self-regulation processes such as goal setting, self-monitoring, and strategic planning can increase their confidence

levels to perform specific tasks in school. These interventions can be loosely categorized under one of the four sources of self-efficacy as identified by Bandura (1986). He argued that one's prior accomplishments/mastery, physiological reactions, vicarious experiences, and forms of persuasion influence an individual's self-efficacy perceptions. (Zimmerman & Cleary, 2006, p. 63)

Numerous studies show that as one's mastery or proficiency at an activity increases, so does one's self-efficacy (Schunk, 1983; Schunk & Schwartz, 1993). These benefits lead to higher aspirations and accomplishments.

### **Assessing Self-efficacy and Self-regulated Learning**

One of the strengths of social cognitive theory is that those who apply it can identify process influences that account for learned outcomes. However, to answer a research question about these influences, such as "How did this increase in self-efficacy and self-regulated learning occur?" one needs to investigate the self-efficacy and self-regulated learning processes during the academic advising session. This is done through micro-analytic procedures in which the advisor analyzes students' thoughts and actions in real time while they perform specifically designated tasks and self-reflect upon their performances.

During this process, students are taught to develop a strategic plan for attaining self-set goals (i.e. forethought processes), to implement study strategies and monitor performance processes and outcomes (i.e. performance control processes), and to evaluate strategy effectiveness and to make strategic adjustments as needed (i.e. self-reflection processes). (Cleary & Zimmerman, 2004, p. 540)

Micro-analytic questions have historically been used in self-efficacy studies (Bandura, 1977, 1986; Bandura & Adams, 1977; Bandura et al., 1982) and self-regulated learning studies (Cleary & Zimmerman, 2001; Cleary, Zimmerman, & Keating, 2006; Kitsantas & Zimmerman, 2002).

### **Applying Social Cognitive Theory to Academic Advising**

Using the constructs of self-efficacy beliefs in academic planning, self-regulated learning phases and processes in academic planning, the four sources for building self-efficacy beliefs incorpo-

rated into self-regulated learning skill levels, and micro-analytic methodology to assess self-efficacy and self-regulated learning, one can explain the process of students' increase in self-efficacy and self-regulated learning in their academic planning. By assessing a student's forethought, performance, and self-reflection phases, academic advisors have a model to use in their session interventions with the goal of increasing a student's self-efficacy and self-regulated learning in academic planning.

#### *Assessing Student's Forethought*

At the beginning of a session, the advisor assesses the student's stated goals and strategic plans for academic planning (forethought phase). To do this, the academic advisor could ask micro-analytic questions that address goals and plans:

- What would you like to obtain from today's session? Do you have major or career options that you are considering or exploring? Tell me the story behind your choice of goal(s).
- Do you know how to do academic planning for reaching your educational goal(s)? Show me how you currently do your academic planning.

#### *Academic Advising Interventions*

Based upon a student's stated goals and demonstrated academic strategic-planning levels, the academic advisor assesses and identifies academic planning strategies the student could optimally use to answer questions and meet his or her goals for the session. The advisor then structures the session to facilitate the student's use and evaluation of this new strategy. If the advisee perceives that the new academic-planning strategy is superior to the one originally used, he or she might choose to adopt it.

Structuring the academic-advising learning environment includes applying Bandura's (1986, 1997) four learning sources that build self-efficacy throughout the performance and self-reflection phases: observing models, gaining experience by doing, receiving encouragement, and reducing avoidance anxiety.

The academic advisor may help students by using observational learning, cognitive modeling with instructional aids, and guided mastery. Such a strategy demonstrates to the student how to address academic-planning questions. This modeling could help students understand how to handle future decisions, moving them toward greater self-regulation in applying more complex academic-planning strategies.

### Performance Phase

During the self-regulated learning performance phase, the student intentionally practices the academic advisor's modeled task strategy for academic planning (enactive mastery). Through this *mastery modeling* process (Bandura, 1997) the learner performs the same actions in a similar style and level as the model. When emulating the academic advisor's academic planning strategy, students receive helpful corrective feedback on their performance (verbal persuasion), which reduces avoidance anxiety (physiological and affective states). These processes facilitate student's discrimination between effective and ineffective performance practices (Schunk, 1983; Zimmerman & Kitsantas, 1996).

### Self-reflection Phase

During the self-regulated learning self-reflection phase, the academic advisor might determine the student's new understanding of the more complex academic planning strategy by asking micro-analytic questions. In this scenario, students demonstrate their comprehension by explaining how and why they used this new strategy. Student's answers would constitute the self-regulated learning-strategy level identified as a learned outcome post-intervention.

This process facilitates student's self-evaluation of their performance and allows them to reconsider and choose new ways of doing (Bandura, 1986, 1997). By comparing a pre-intervention academic-planning strategy to their post-intervention understanding, students can determine the strategy that proved most beneficial and which one(s) they would more likely use in future academic planning. These stated intentions would constitute the strategic planning within the next forethought self-regulated learning-phase cycle (Zimmerman, 2000).

Students could assess their own self-efficacy in academic planning at post-intervention as well as retrospectively rate their pre-intervention self-efficacy. These ratings would provide comparison data on self-efficacy changes from academic advising sessions (Erlich, 2009b).

### Tools for Applying Social Cognitive Theory to Academic Advising

Table 1 integrates three increasingly more complex academic planning strategies (recognizes, chooses, creates) with the specific micro-analytic assessment questions associated with each self-regulated learning phase. These academic planning strategies were created by the first author (Erlich) based upon his academic advising experi-

ences. Through this instrument, we can assess the compound student-learning outcome statement, "Students should be able to recognize, choose, and create their own academic plans that successfully navigate them through college." Scoring a student's answers to self-regulated learning questions during the session allows an advisor to observe pre- and post-intervention effects on the student's learning of academic planning strategies (Erlich, 2008).

The self-regulated learning cycle has been shown to have a reciprocal impact on self-efficacy beliefs (Zimmerman & Cleary, 2006). As the student learns the strategies for becoming more effective in learning performance and outcomes, her or his self-efficacy beliefs increase.

Although self-efficacy beliefs can influence self-regulation processes, this relationship is reciprocal in that manipulating self-regulation can also produce changes in one's self-perceptions. Goal setting influences self-efficacy perceptions because it enables learners to evaluate goal progress and personal mastery over tasks. (Zimmerman & Cleary, 2006, p. 58)

Self-efficacy beliefs and self-regulated learning can mutually enhance each other. This reinforcement of key social-cognitive theory components has direct implications for structuring the student-learning environment so that desired learning outcomes in academic advising are achieved.

### Conclusion

We based this article on an assumption that social cognitive theory, specifically self-efficacy and self-regulated learning, can be productively applied and used to assess student learning outcomes in the academic advising process. We encourage a call for future research to validate the use of social cognitive theory in academic advising and more broadly to students' learning development through college. We used academic course advising as one example; however, social cognitive theory could be fruitfully applied to evaluating student learning in any academic discipline or student service. Because of the many complexities associated with student learning and development in college, this article serves as part of an ongoing process of applying social cognitive theory to several research areas.

Future research might include the testing of the following hypotheses: a) To what extent did students' perceived self-efficacy in academic planning increase following academic advising interventions? b) To what extent did students' levels

**Table 1.** Micro-analytic assessment questions for self-regulated learning phases and academic planning strategies

Scoring	Forethought	Recognizes (R)	Chooses (Ch)	Creates (Cr)
NR (No recognition) R Ch Cr (Associate Degree and Transfer)	#1 Goal Setting	What would you like to obtain from today's session? Do you have major and/or career options that you are considering or exploring? Tell me the story behind your choice of goal(s).		
Yes/No Use Rubric for Scoring NR R Ch Cr	#2 Strategic Plan	Do you know how to do academic planning for reaching your educational goal(s)? Show me how you currently do your academic planning.		
R Ch Cr  (Associate Degree and Transfer)	Interventions	Based upon the student's answers to stated goals, and strategic plan questions, advisor determines which intervention strategies (recognize, choose, create) are administered.		
Scoring	Performance			
Yes No  Yes No	Task Strategy  Self-recording	Student deliberately practices applying Academic Task Strategy that was just modeled, receiving feedback. Student uses the general education and major patterns plus any educational plans.		
Scoring	Self-reflection	Recognizes	Chooses	Creates
Yes No NR R Ch Cr (Associate Degree and Transfer) (Use Rubric for Scoring)	#3 Self-evaluation (Demonstrates criteria for this strategy and strategy's purpose)	What is this sheet called and why is it important?	Tell me why you chose this course.	Tell me why you prioritized your courses in this order.
Administration of Student Self-efficacy Survey/Advisor Completes Rubric*				
Scoring	Self-reflection			
0 – 10 #	#4 Self-efficacy	If you were to rate your level of confidence before a session for doing academic planning on a scale from 0 – 10, 0 being the lowest and 10 being the highest confidence level, what # would you rate yourself?		
Yes No	#5 Self-reaction	You stated your goal for this session was _____. Was your goal for this session met?		
NR R Ch Cr  (Associate Degree and Transfer)	#6 Adaptive Inferences (Changes in intended future strategy)	How will you do your future academic planning for reaching your educational goals?		

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of self-regulated learning in performing academic planning tasks increase following academic advising interventions? c) To what extent is a reciprocal relationship found between self-efficacy and self-regulated learning in academic planning? d) How did this increase in students' perceived self-efficacy and self-regulated learning in academic planning occur?

Future researchers should test the validity and reliability of self-efficacy and self-regulated learning instruments developed to assess these constructs in academic planning. Additionally, research connecting social cognitive theory-based academic advising processes to students' learned outcomes would aid the field in clarifying effective interventions.

In this article, we excluded a discussion of social cognitive career theory (SCCT) (Lent, 2005; Lent et al., 1994) because our major focus was in viewing the relationship between self-efficacy with self-regulated learning in academic planning. SCCT focuses on the relationship between self-efficacy, outcome expectations, and goal selection/performance, but does not address the impact from a self-regulated learning process. Zimmerman's (2000) self-regulation learning model may be more appropriately integrated with SCCT. We encourage a full theoretical exposition of self-regulated learning and SCCT.

The academic advising literature has yet to show how social cognitive theory can be productively used in academic advising. This gap in the literature is significant because of the many productive ways that it has been applied to education, career decision making, health care choices, and athletics. To begin bridging this gap in the literature, we showed how social cognitive theory constructs can be used to explain and predict academic advising behaviors with results assessed as student learning outcomes.

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