FutureReview

FutureReview

— International Journal of Transition, College, and Career Success —

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LETTER FROM THE EDITOR

Welcome to *Future Review: International Journal of Transition, College and Career Success*. We are excited to be publishing our inaugural issue in the spring of 2019. This new journal is intended to be a thought-provoking venue for sharing high quality research and novel ideas related to post-secondary school transitions into the world of work and into post-secondary institutions.

Published by the Future Institute Research Center, this journal will be a stimulating source of information for a wide audience that includes: researchers, teachers, mentors, curriculum designers, college and career counselors, administrators, and policymakers.

This first issue has three articles. Two of the articles are contributions to research on student success, one is quantitative and the other is qualitative. These articles explore different dimensions of student success, one addresses student learning and the other addresses the importance of cultural centers for student engagement and support. The third article is a conceptual piece that synthesizes current knowledge regarding student success in post-secondary education.

The publication of this issue represents an important step for this new journal; I want to thank all of the authors who contributed to it. Working with the authors was a true pleasure and having their work appear in Future Review is a true honor. I look forward to working with other authors to publish their work in our next issue.

Everyone at the Future Institute hopes you enjoy reading these articles and that they advance your thinking about student transition and success.

John Klatt, *Future Review* Editor

John Klatt, PhD currently serves as the assistant dean for Student Development in the College of Agricultural and Life Sciences at UW- Madison. In this role, John oversees co-curricular programming and college-wide student development initiatives. John's research interests center on understanding human potential and human well-being, particularly in the face of adversity.

John has explored the psychological construct of forgiveness to understand well-being and achievement in both youth and adults. He has also explored factors that contribute to success as students' transition from secondary school to a university. His research integrates educational, developmental, and counseling psychology and uses a variety of investigatory methods.

Validity Evidence of the Internal Structure of the DAACS Self-Regulated Learning Survey

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The Diagnostic Assessment and Achievement of College Skills (DAACS) online system assesses newly enrolled college students' skills in reading, writing, mathematics, and self-regulated learning, and provides individualized feedback and links to resources. The purpose of this study is to examine validity evidence regarding the internal structure of the DAACS Self-Regulated Learning (SRL) self-report survey. Factor structure was initially examined using maximum-likelihood exploratory factor analysis with varimax rotation on a pilot sample (n = 682). Based on the results, as well as the intended uses of the survey and expert opinion, two confirmatory factor analysis models were tested: the measurement model, and the instructional model. Validity evidence regarding the survey's internal structure were gathered using a new sample of 6,644 adult learners at an online university. The confirmatory factor analysis results, correlations, and internal consistency reliability estimates suggested acceptable model fit for both the measurement and instructional models. Both models were retained to serve different purposes.

Keywords: Self-regulated learning, survey, higher education, adult learners, validity and reliability

Institutions of higher education often base assessments of student readiness for college on placement exams in reading, writing, and mathematics (Bailey & Cho, 2010; Belfield & Crosta, 2012). These assessments are used to identify students who might be academically at-risk and to place them in remedial or basic coursework, often for no credit. However, typical placement-based assessments do not provide students with any feedback regarding their academic strengths and weaknesses, nor do they recommend useful resources. They also fail to provide information about other academic competencies needed to succeed in college, including and especially self-regulated learning (SRL), which refers to the processes by which students tailor their cognitions, emotions, and behaviors to the achievement of their academic goals (Zimmerman & Schunk, 2011). Self-regulated learning skills have been linked to student success, and can be taught (Zimmerman, Moylan, Hudseman, White, & Flugman, 2011; Zimmerman & Schunk, 2011).

The Diagnostic Assessment and Achievement of College Skills (DAACS; https://daacs.net) is an assessment and feedback system that was developed to address these shortcomings of traditional college readiness assessments. DAACS assesses students' skills in reading, writing, mathematics, and SRL, and gives them access to individualized feedback and resources. DAACS is unique in that it is diagnostic (no stakes) and open source.

The impetus for creating the DAACS SRL survey was the need for a practical, freely accessible, and actionable assessment of SRL. Like other SRL measures (e.g., Cleary, 2006; Dugan & Andrade, 2011; Pintrich, Smith, Garcia, & McKeachie, 1993), the survey is designed to measure metacognition, motivation, and learning strategies. Unlike others, the DAACS survey is short enough to encourage its use, having been designed to ensure that the three areas of self-regulated learning are adequately represented with a small but psychometrically sound number of items. In addition, this survey is designed to serve instructional purposes; each scale, subscale, and item is explicitly linked to actionable feedback that can assist students to help themselves become more academically successful.

The DAACS is currently being used by two major online universities, which have made it a part of their orientation process in lieu of traditional placement exams. It is implemented to measure students' college readiness and provide feedback to students at the onset of their academic studies. Academic advisors are trained to use the information provided by the DAACS

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assessments to give students individualized support. The objective of this paper is to examine the evidence for the validity and reliability of the inferences made based on the SRL survey.

Validation requires specifying the interpretations and uses of test scores, and supporting them with theory and evidence (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 2014; Kane, 1992, 2011, 2013). According to Kane's (2013) argument-based approach, validity, at its most basic level, is a two-step process in which test developers provide: (a) a rationale for the interpretations (or uses) of the test scores, and (b) evidence of the plausibility of the proposed interpretations. A proposed interpretation or use can be considered valid to the extent that the interpretation/use argument is "coherent and complete… and its assumptions are either highly plausible a priori or are adequately supported by evidence" (pp. 2-3). Given the intended purposes of the DAACS SRL survey, three assumptions inform the interpretive argument for validation: (a) Self-regulated learning refers to the processes by which students tailor their cognitions, emotions, and behaviors towards the achievement of their academic goals; (b) the interpretation of scores should serve practical, instructional purposes, thereby providing actionable feedback to students; and (c) self-regulated learning is a malleable skill that has been linked to academic success.

Assumption #1: Self-regulated learning refers to the processes by which students tailor their cognitions, emotions, and behaviors toward the achievement of their academic goals

The DAACS SRL survey was designed to measure cognitive, emotional, and behavioral processes related to self-regulated learning, specifically in the areas of metacognition, motivation, and strategies for learning. The survey treats SRL as a domain-general trait, rather than a domain-specific state. Although there is support in the research literature for both perspectives (e.g., Pintrich & De Groot, 1990; Robbins, Allen, Casillas, Hamme-Peterson, & Le, 2006), treating SRL as a domain-specific state would necessitate dozens or even hundreds of surveys. The domain-general DAACS SRL survey is practical as well as theoretically defensible.

Metacognition is the awareness and management of one's thoughts, and involves planning one's learning, monitoring how learning progresses, and assessing if and how well learning has occurred (McKeown & Beck, 2008; Serra & Metcalfe, 2008). Most or all models of SRL include planning, monitoring, and evaluation in one form or another (Butler, 2002; Paris & Paris, 2001; Pintrich, 2004; Winne & Perry, 2000; Zimmerman, 2000; Zimmerman & Schunk, 2011). Accordingly, the metacognition scale in the DAACS SRL survey includes planning, monitoring, and evaluation subscales.

Motivation is the process that activates and sustains cognitions, emotions, and actions in the interest of one's goals (Schunk & Zimmerman, 2008). Academic motivation is a multi-dimensional construct that includes task interest, task value, test anxiety, goal orientation, mindset, and self-efficacy. Because most motivational processes are related to adaptive behaviors and academic success, researchers have explored the effects of interventions that target

multiple motivational constructs (Rosenzweig & Wigfield, 2016). The strong empirical evidence for the associations between academic achievement and test anxiety, mastery orientation, mindset, and self-efficacy led us to select those constructs as subscales in the DAACS SRL survey (Bembenutty & Zimmerman, 2003; Mega, Ronconi, & DeBeni, 2014).

Strategies for learning includes the cognitions and behaviors that learners engage in when processing new information or completing academic tasks (Mayer, 1988; Zimmerman, 1989). While previous research mostly focused on cognitive learning strategies such as elaboration, organization, rehearsal, and comprehension (Paris & Paris, 2001), strategies that aid with organizing one's environment and time and seeking help are also important (Cleary, Dembitzer, & Kettler, 2015). Items in the strategies for learning scale of the DAACS SRL survey are therefore related to managing environment, managing time, help-seeking, and enhancing understanding.

In summary, in order to reflect current models of SRL, the DAACS survey has three scales, each with subscales: motivation has four subscales (i.e., anxiety, mastery orientation, mindset, and self-efficacy); metacognition has three subscales (i.e., planning, monitoring, and evaluation); and strategies for learning has four subscales (i.e., help-seeking, managing environment, managing time, and strategies for understanding), for a total of 11 subscales. This assumption about the structure of SRL was tested using factor analyses and correlations.

Assumption #2: The interpretation of scores should serve practical, instructional purposes, thereby providing actionable feedback to students

Theory and research on feedback consistently indicate that learning is enhanced when students have information about the gap between their current and desired levels of achievement, and information about how to close the gap (Hattie & Timperley, 2007; Shute, 2008; Wiliam & Thompson, 2007). The items in the 11 subscales were carefully selected or written by SRL experts to be instructionally tractable and specific enough to generate meaningful, actionable feedback about how students could improve as learners. Feedback, therefore, is a key element of the interpretation and subsequent use of the DAACS SRL survey results.

Upon completing the survey, students are given one of three possible scores—developing, emerging, or mastering—which correspond with low, medium, and high scores for each of the scales and sub-scales. The category labels were chosen in order to suggest a growth opportunity and to avoid discouraging students. Receiving a score of mastering indicates a likely area of strength; emerging indicates that the student reports partial but inconsistent commitment to the skill or belief assessed by the scale. A score of developing suggests a potential barrier to successful learning—an area in need of improvement.

Scale scores are reported in terms of the three categorical rankings, along with descriptions of the scale and results, and short, animated videos that describe the scale and its importance. Students can get more information about subscales by clicking on links to detailed, item-level feedback about their results, as well as a scenario illustrating the sub-scale's importance. From there, students can dive even deeper by clicking on links to detailed

information about the sub-scale, profiles of fictional students who have overcome difficulties with that particular skill, strategies students can use to improve, and links to additional open educational resources.

Assumption #3: Self-regulated learning is a malleable skill that has been linked to academic success

Research on SRL demonstrates that students of all ages and across disciplines improve their academic performance when they use strategies to manage their learning, motivation, metacognition, and environment (DeCorte, Mason, Depaepe, & Verschaffel, 2011; Graham & Perin, 2007; Kitsantas & Kavussanu, 2011; Pintrich, 2004; Tonks & Taboada, 2011; Winne & Hadwin, 1998; Zimmerman, 2000, 2011; Zimmerman, et al., 2011). Accordingly, the DAACS SRL survey and the corresponding results and feedback are all designed with the expectation that, when used effectively, they will help to improve self-regulated learning behaviors, and subsequently lead to academic success.

The DAACS SRL survey is designed to encourage students to change their behaviors and perceptions as learners. The survey and feedback are free, open-source, and easily accessible online, and the feedback is immediate. If students are unfamiliar with a particular domain or subdomain, there are content-related materials within the feedback that introduce students to the construct and its importance to learning and achievement. The availability of information and resources is intended to encourage autonomy in learning.

However, some students might find it challenging to interpret their scores and feedback. To facilitate their understanding and usage of the SRL resources, academic advisors at the participating institutions help students interpret their results by identifying their strengths and areas in need of improvement. In addition, academic advisors assist students with selecting strategies to improve their SRL skills and, subsequently, learning and performance.

Purpose of the Study

This paper describes the development of the DAACS SRL survey and examines the evidence for the plausibility of Assumption 1, regarding the structure of SRL as comprising metacognition, motivation, and strategies for learning. Evidence for the plausibility of Assumptions 2 and 3 is currently being analyzed. Validity evidence regarding the internal structure of the survey is reported here. Two confirmatory factor analysis models were tested. One model was based on exploratory factor analysis (EFA) results, and another model took into consideration the instructional and practical purposes of DAACS and the SRL survey. Since both models are based on strong theoretical foundations as well as empirical evidence, we hypothesize that both models will be useful but for different purposes.

Method
Sample

Two samples were used for this study. The first sample included 682 incoming students from two online institutions, most of whom were non-traditional/adult learners. The students were randomly selected, and participation was voluntary and anonymous. This first sample was used for exploratory factor analysis.

The second sample included 6,644 incoming students in one private, non-profit, fully-online university in the Western region of the United States who enrolled between April and July 2017. Of the 6,644 students, a little more than half were female (54%), and just under half were first-generation college students (45%). The majority were 18 to 37 years old (63%), and White (70%) or Black (11%). The remaining 19% of students were Hispanic (3%), Asian (3%), American Indian, Alaskan Native, or Native Hawaiian (1%), or mixed or unknown race (5%). Since these were adult learners, the majority were earning a salary of at least $35,000 (58%); only 7% were reported to have an income of less than $16,000.

The sample of 6,644 students was part of a randomized control trial of the DAACS intervention. All newly enrolled students at the participating university were required to attend an online orientation. Treatment students were required to complete the DAACS SRL survey as part of their orientation, while control students were not. Most completed the survey in 15 minutes or less.

The DAACS SRL Survey

The DAACS SRL survey is a 47-item self-report survey that assesses *motivation* (20 items; 4 subscales; anxiety, mastery orientation, mindset, and self-efficacy), *metacognition* (13 items; 3 subscales; planning, monitoring, and evaluation), and *strategies for learning* (14 items; 4 subscales; help-seeking, managing environment, managing time, and strategies for understanding). The items use two 5-point Likert-type scales: either 0 = *almost never* to 4 = *almost always*, or 0 = *strongly disagree* to 4 = *strongly agree*.

Items on the scale are actionable and instructionally meaningful, and can be used to provide feedback to students and their advisors. For example, two items in the strategies for understanding subscale are, "I think about the types of questions that might be on a test" and "I make pictures or diagrams to help me learn concepts." Depending on how students respond to these items, students and advisors could be advised by DAACS to incorporate these self-regulated learning behaviors into their repertoire of study strategies.

Procedures for the Development of the DAACS SRL Survey

According to the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014), validity evidence based on internal structure includes the relationships among the test items and the degree to which those relationships conform to the construct. Best practices for instrument development, particularly for diagnostic assessments (DeVellis, 2011; Downing, 2006; Gorin, 2007; Johnson & Morgan, 2016), were followed to develop the DAACS SRL survey and to gather reliability and validity evidence to support the assumptions. The instrument development procedures, which consisted of three phases, are summarized in the next section with a focus on the survey's internal structure.

Phase one: Operationalizing SRL. We began by defining the scales and selecting items to pilot. Several experts in self-regulated learning, assessment, and measurement examined existing measures, including the Self-Regulation Strategy Inventory – Self-Report (SRSI-SR; Cleary, 2006), the Survey of Academic Self-Regulation (SASR; Dugan & Andrade, 2011), the Online Learning

Value and Self-Efficacy Scale (OLVSES; Artino & McCoach, 2008), the Metacognitive Awareness Inventory (Schraw & Dennison, 1994), Mindset (Dweck, 2006), and the Westside Test Anxiety Scale (Driscoll, 2007). Details regarding reliability and validity as well as norming samples of these original scales are provided in Appendix A. One-hundred and ten items were selected for pilot testing based on content, clarity, and usefulness for feedback.

Phase two: Pilot testing and scale development. Phase two involved generating scales and refining items based on empirical data and expert judgments. The 110-item version of the survey was administered to 682 adult learners at two online, adult-serving institutions. Data from the pilot testing were used to conduct maximum-likelihood exploratory factor analysis using the `factanal` function in *R*. Since the purpose of this step is to reduce the number of items and identify factors of the survey, varimax rotation was used. In addition, academic advisors, who are experts in student advisement, were asked to rate all 110 items based on their usefulness for providing actionable feedback to students.

Phase three: Survey model confirmation. Two models were tested using confirmatory factor analysis (CFA): (a) the most parsimonious model derived from the EFA, which we call the *measurement model*, and (b) a model we call the *instructional model*, which was based on the theoretical framework, the results from the EFA, and the survey's intended purposes. Internal consistency estimates were evaluated to determine the appropriateness of the scales and subscales. Finally, correlations between and within scales were examined to confirm that the scales were distinct yet related, and subscales within a scale were more related to each other than to other scales.

Results

Exploratory Factor Analysis of the SRL Survey

The scree plot and parallel analysis suggested an eight-factor structure; however, the factor loadings from the EFA of an eight factor structure, along with conceptual justifications by expert judgments, led us to a six-factor structure with 47-items (Table 1). Empirically, 63 of the 110 items were omitted because they failed to have a factor loading of .30 or above (Brown, 2006), they were repetitive with other retained items, or both. The ratings of items by the academic advisors, as well as the evaluations of items and scales by the SRL experts, were also considered when determining the scales and items for the shorter version of the survey. After the 63 items were removed, two factors were left with two or less items. These two factors were ultimately dropped, but the items were retained and moved to a conceptually relevant factor, resulting in a six-factor structure.

The first factor was characterized by items describing individuals' motivational dispositions, including their mastery orientation and self-efficacy; this factor

was therefore named *mastery motivation*. As expected, the second factor, named *mindset,* revealed that Dweck's (2006) mindset items held together. The third factor, named *metacognition*, was defined by items that described metacognitive processes, including planning, monitoring, and evaluation. The fourth factor was composed of items describing anxious behaviors; this factor was thus named *anxiety*. The fifth factor, strategies for *managing time and environment*, was characterized by items describing learning strategies related to management of time and environment. Finally, the sixth factor was defined by items describing help-seeking behaviors and strategies used to understand new information or to clarify what was confusing; therefore, this factor was named *strategies for understanding and help-seeking.*

Only one or two items loaded on the seventh and eighth factors. These items represented teachable skills and were deemed important by the experts, so two relevant items from the seventh factor were moved to the strategies for managing time and environment factor, and the one item from the eighth factor was moved to the strategies for managing understanding and help-seeking factor. Given its meaning and relevance, one item, "I avoid asking questions about things I don't understand," was moved from the strategies for time and environmental management factor to the strategies for understanding and help-seeking. The resulting model is illustrated in Figure 1.

The second model was developed to reflect the practical purposes of the DAACS SRL survey (Figure 2) and the structure of the feedback provided to students. This model was based on the factor structure from the EFA, but the items and factors were regrouped into first and second latent factors based on their instructional utility. Specifically, mastery motivation items were separated into self-efficacy and mastery orientation, and these two subscales, along with mindset and anxiety, were grouped under the second-order factor of motivation. Metacognition was another second-order factor, but its items were separated into three first-order factors to represent three distinct metacognitive processes: planning, monitoring, and evaluation. Finally, both strategies scales were grouped together as the third second order factor of *strategies*, and separated into four first-order factors: managing environment, managing time, help-seeking, and understanding.

Confirmatory Factor Analyses of the Measurement and Instructional Models

Maximum-likelihood CFA was conducted using the `lavaan` R package (Rosseel, 2017) to cross-validate the factor loadings of the EFA on the revised survey with a new sample of non-traditional online adult learners (n=6,644). CFA was also used to evaluate the fit of the instructional model, which was based on theoretical assumptions and the intended diagnostic and instructional uses of the survey.

The standardized loadings and measures of model fit for both models are presented in Table 2. According to Hu and Bentler's (1999) criteria that consider jointly a combination of indices, both the measurement and instructional models have model fits that establish the smallest Type 1 and Type 2 errors (SRMR ≤ .09; RMSEA ≤ .06). In comparison to the measurement model, the Akaike Information Criterion (AIC) index of the
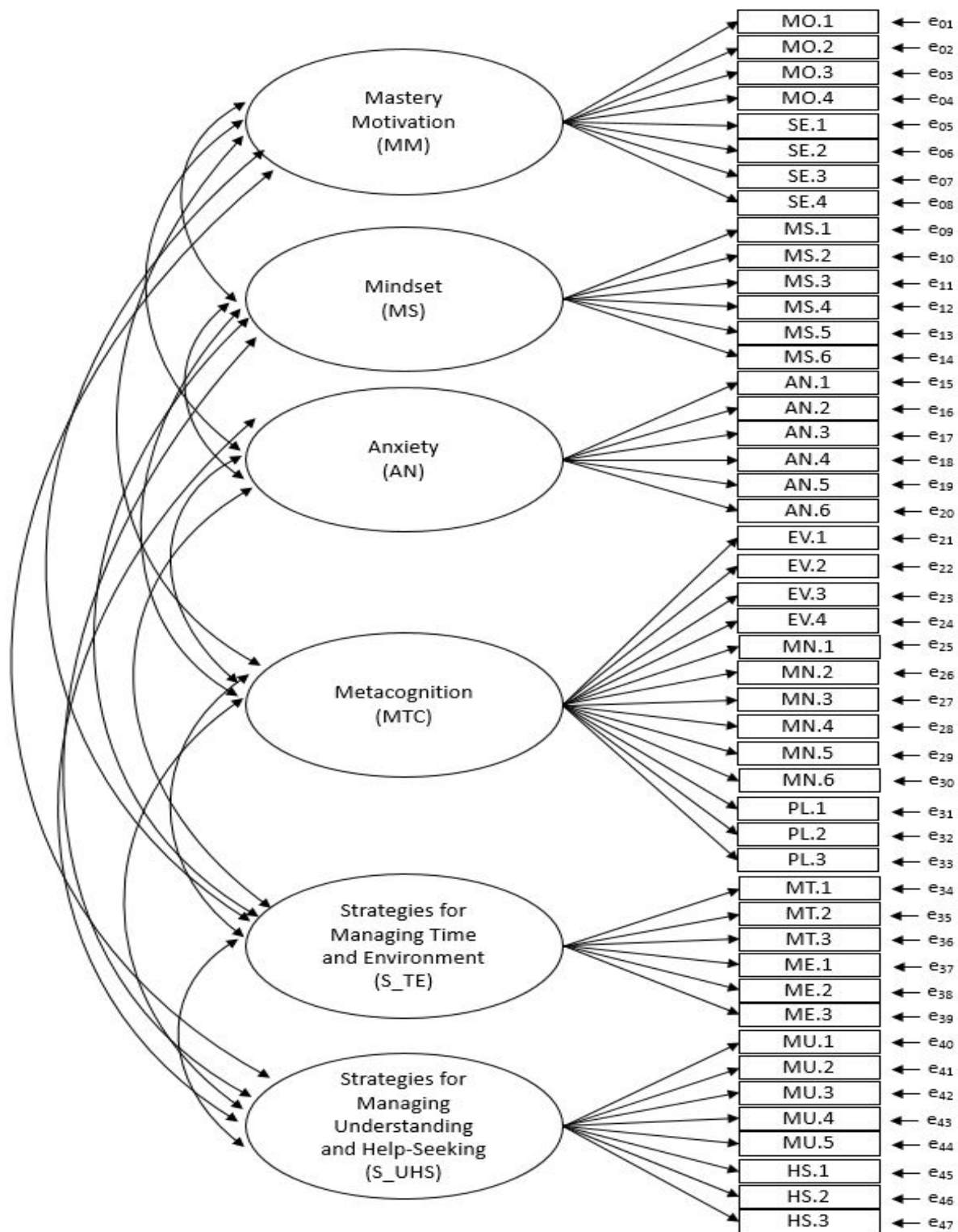
Figure 1. The measurement model that was informed by EFA, and tested and retained using CFA
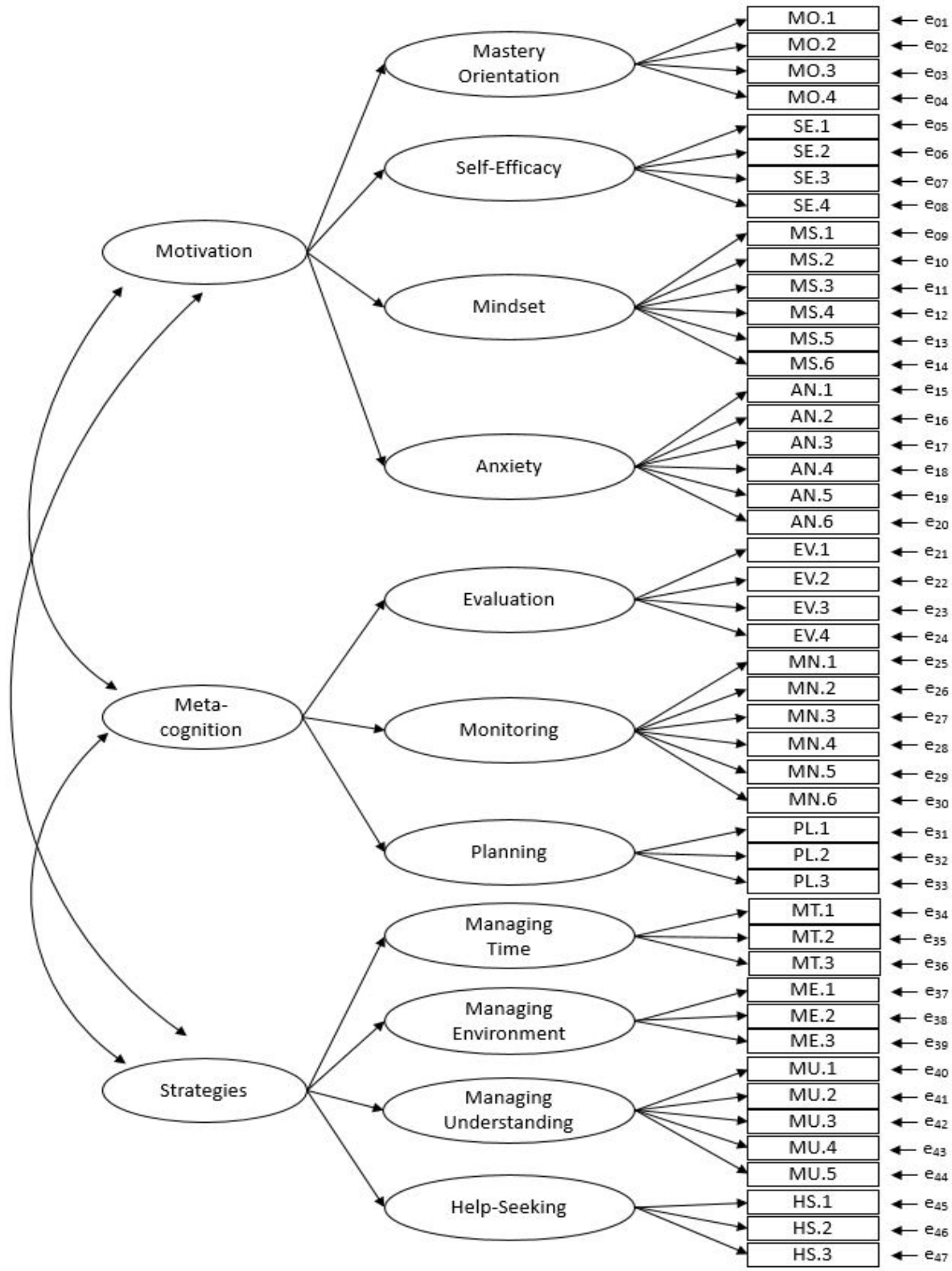
Figure 2. The instructional model that was based on the measurement model, adapted in light of the purposes of the DAACS, and tested and retained using CFA

Table 1

Varimax EFA Standardized Factor Loadings (n=682) and Internal Consistency Estimates

	Factor Loadings								
	1	2	3	4	5	6	7	8	α
Factor 1: Mastery Motivation									**.29**
I find coursework enjoyable.	.59								
What I am learning is relevant to my life.	.57								
Learning is fun for me.	.55								
I want to master the things I am learning.	.52								
I am confident I can do an outstanding job on the activities in an online course.	.55								
I am confident I can learn without the physical presence of an instructor to assist me.	.54								
I am certain I can understand even the most difficult material presented in an online course.	.50								
Even with distractions, I am confident I can learn material presented online.	.45								
Factor 2: Mindset									**.90**
You can always greatly change how intelligent you are.		.75							
No matter how much intelligence you have, you can always change it quite a bit.		.72							
No matter who you are, you can significantly change your intelligence level.		.71							
(You have a certain amount of intelligence, and you can't really do much about it.)		-.74							
(You can learn new things, but you can't really change your basic intelligence.)		-.79							
(Your intelligence is something about you that you can't change very much.)		-.81							
Factor 3: Anxiety									**.89**
During important exams, I cannot remember material that I knew before the exam.			.79						
I feel out of sorts or not really myself when I take important exams.			.78						
I worry so much before a major exam that I am too worn out to do my best on the exam.			.77						
During important exams, I think that I am doing awful or that I may fail.			.73						
The closer I am to a major exam, the harder it is for me to concentrate on the material.			.71						
When I study for my exams, I worry that I will not remember the material on the exam.			.67						
Factor 4: Metacognition									**.90**
I ask myself if I learned as much as I could have once I finish a task.				.67					
I ask myself how well I accomplished my goals once I'm finished.				.66					
I ask myself if I have considered all options after I solve a problem.				.66					
I summarize what I've learned after I finish.				.65					
I ask myself questions about how well I am doing while I am learning something new.				.63					
I ask myself questions about the material before I begin.				.62					
I consider several alternatives to a problem before I answer.				.62					
I find myself analyzing the usefulness of strategies while I study.				.58					

	Factor Loadings								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**α**
I find myself pausing regularly to check my comprehension.				.53					
I ask myself periodically if I am meeting my goals.				.51					
I ask myself if what I'm reading is related to what I already know.				.49					
I think about what I really need to learn before I begin a task.				.49					
I think of several ways to solve a problem and choose the best one.				.46					
Factor 5: Strategies for Managing Time and Environment									**.80**
I finish all of my schoolwork before I do anything else.					.59				
I pace myself while learning in order to have enough time.					.53				
(I wait to the last minute to start studying for upcoming tests.)					-.65				
(I let people interrupt me when I am studying.)					-.49				
I try to study in a place that has no distractions (e.g., noise, people talking).							.86[a]		
I make sure no one disturbs me when I study.							.64 [a]		
Factor 6: Strategies for Managing Understanding									**.74**
I stop and reread when I get confused.						.63			
I stop and go back over new information that is not clear.						.60			
I consciously focus my attention on important information.						.49			
I think about the types of questions that might be on a test.						.35			
I make pictures or diagrams to help me learn concepts.							.86 [a]		
I ask others for help when I don't understand something.									
I ask my instructor questions when I do not understand something.						.34			
(I avoid asking questions about things I don't understand.)					-.48	-.27 [a]			
Eigenvalues	22.66	7.74		4.46	3.23	2.77	2.70	2.39	
Cumulative variance explained	9%	17%	23%	29%	33%	36%	39%	41%	

*Note*s: Items in parentheses are reverse-coded items

[a]These items were moved from their original factors to one of the six factors with which they were theoretically similar

Table 2

Comparison of CFA Standardized Loadings and Goodness-of-Fit Indices for Measurement (6 Factors) and Instructional (3 Second Order, 11 First Order Factors) Models (n=6644)

Items	Measurement Model			Instructional Model		
	Factor. Indicator#	Loadings	α	(2nd order → 1st order) Factor. Indicator#	Loadings	α
Factor 1: Mastery Motivation (MM)	**F1: MM**		.83	**F1: Motivation (MOT)**		.61
				MOT → MO	.86	.71
I find coursework enjoyable.	MM.1	.37		MO.1	.46	
I want to master the things I am learning.	MM.2	.29		MO.2	.32	
What I am learning is relevant to my life.	MM.3	.29		MO.3	.32	
Learning is fun for me.	MM.4	.40		MO.4	.50	
				MOT → SE	.80	.82
I am confident I can learn without the physical presence of an instructor to assist me.	MM.5	.43		SE.1	.44	
I am certain I can understand even the most difficult material presented in an online course.	MM.6	.51		SE.2	.52	
I am confident I can do an outstanding job on the activities in an online course.	MM.7	.46		SE.3	.48	
Even with distractions, I am confident I can learn material presented online.	MM.8	.47		SE.4	.49	
Factor 2: Mindset (MS)	**F2: MS**		.86	MOT → MS	.43	.86
You have a certain amount of intelligence, and you can't really do much about it.	MS.1	.45		MS.1	.45	
No matter who you are, you can significantly change your intelligence level.	MS.2	.60		MS.2	.60	
You can always greatly change how intelligent you are.	MS.3	.66		MS.3	.65	
Your intelligence is something about you that you can't change very much.	MS.4	.57		MS.4	.58	
You can learn new things, but you can't really change your basic intelligence.	MS.5	.62		MS.5	.62	
No matter how much intelligence you have, you can always change it quite a bit.	MS.6	.59		MS.6	.59	
Factor 3: Anxiety (AN)	**F3: AN**		.91	MOT → AN	.47	.91
During important exams, I think that I am doing awful or that I may fail.	AN.1	.77		AN.1	.77	
I feel out of sorts or not really myself when I take important exams.	AN.2	.79		AN.2	.79	
During important exams, I cannot remember material that I knew before the exam.	AN.3	.70		AN.3	.70	
The closer I am to a major exam, the harder it is for me to concentrate on the material.	AN.4	.70		AN.4	.70	
When I study for my exams, I worry that I will not remember the material on the exam.	AN.5	.81		AN.5	.81	
I worry so much before a major exam that I am too worn out to do my best on the exam.	AN.6	.66		AN.6	.65	
Factor 4: Metacognition (MTC)	**F4: MTC**		.90	**F2: Metacognition (MTC)**		.89
				MTC→EV	.98	.73
I ask myself if I learned as much as I could have once I finish a task.	MTC.1	.55		EV.1	.56	
I ask myself how well I accomplished my goals once I'm finished.	MTC.2	.63		EV.2	.64	
I summarize what I've learned after I finish.	MTC.3	.65		EV.3	.65	
I ask myself if I have considered all options after I solve a problem.	MTC.4	.60		EV.4	.60	
				MTC→MN	1.03	.79
I ask myself periodically if I am meeting my goals.	MTC.5	.65		MN.1	.65	
I find myself analyzing the usefulness of strategies while I study.	MTC.6	.63		MN.2	.62	
I ask myself questions about how well I am doing while I am learning something new.	MTC.7	.58		MN.3	.57	

Item	Code	Loading		Code	Loading	2nd order
I consider several alternatives to a problem before I answer.	MTC.8	.59		MN.4	.58	
I find myself pausing regularly to check my comprehension.	MTC.9	.44		MN.5	.43	
I ask myself if what I'm reading is related to what I already know.	MTC.10	.53		MN.6	.52	
				MTC→PL	.99	.71
I think of several ways to solve a problem and choose the best one.	MTC.11	.54		PL.1	.54	
I think about what I really need to learn before I begin a task.	MTC.12	.61		PL.2	.62	
I ask myself questions about the material before I begin.	MTC.13	.70		PL.3	.70	
Factor 5: Strategies for Managing Time and Environment (S_TE)	**F5: S_TE**	.79		**F3: Strategies for Learning (STR)**		.74
				STR→MT	.80	.70
I wait to the last minute to start studying for upcoming tests.	S_TE.1	.42		MT.1	.45	
I pace myself while learning in order to have enough time.	S_TE.2	.52		MT.2	.63	
I finish all of my schoolwork before I do anything else.	S_TE.3	.48		MT.3	.54	
				STR→ME	.56	.80
I make sure no one disturbs me when I study.	S_TE.4	.68		ME.1	.79	
I try to study in a place that has no distractions (e.g., noise, people talking).	S_TE.5	.63		ME.2	.69	
I let people interrupt me when I am studying.	S_TE.6	.50		ME.3	.53	
Factor 6: Strategies for Managing Understanding and Help-Seeking (S_UHS)	**F6: S_UHS**	.79				
				STR → MU	.94	.69
I consciously focus my attention on important information.	S_UHS.1	.50		MU.1	.53	
I stop and go back over new information that is not clear.	S_UHS.2	.47		MU.2	.48	
I think about the types of questions that might be on a test.	S_UHS.3	.43		MU.3	.46	
I stop and reread when I get confused.	S_UHS.4	.42		MU.4	.42	
I make pictures or diagrams to help me learn concepts.	S_UHS.5	.44		MU.5	.45	
				STR → HS	.68	.78
I ask others for help when I don't understand something.	S_UHS.6	.54		HS.1	.65	
I avoid asking questions about things I don't understand.	S_UHS.7	.34		HS.2	.43	
I ask my instructor questions when I do not understand something.	S_UHS.8	.54		HS.3	.69	

Goodness-of-Fit Indices	Measurement Model	Instructional Model
χ^2 (*p*-value)	26019.806 (*p* < .001)	19988.706 (*p* < .001)
df	1019	1020
χ^2/df	25.534	19.597
AIC	648410.705	642377.605
CFI	.826	.868
RMSEA [90% CI]	.061 [.060, .061]	.053 [.052, .054]
SRMR	.059	.051

Note: In the measurement model, factors were Mastery Motivation (MM), Mindset (MS), Anxiety (AN), Metacognition (MTC), Strategies for Managing Time and Environment (S_TE), and Strategies for Managing Understanding and Help-Seeking (S_UHS). In the instructional model, first-order factors were Mastery Orientation (MO), Self-efficacy (SE), Mindset (MS), Evaluation (EV), Monitoring (MN), Planning (PL), Anxiety (AN), Managing Time (MT), Managing Environment (ME), Understanding (MU) and Help-seeking (HS). Second-order factors were Motivation (MOT), Metacognition (MTC) and Strategies (STR).

* *p*-values were significant.

instructional model is smaller, and therefore slightly better. Furthermore, a χ2 difference test was conducted to compare the model fits between the measurement model and the instructional model. Using the nonnest2 R package (Merkle & You, 2018), findings from the non-nested likelihood ratio test suggests that the instructional model has a better fit than the measurement model, z = -21.330, p < .001.

Internal Consistency Reliability

Cronbach's coefficient alpha was used to examine internal consistency reliability for the scales and subscales of the measurement and instructional models. As shown in Table 2, the six scales in the measurement model had sufficient internal consistency reliability estimates (α = .79 to .91). Likewise, the 11 first order factors in the instructional model had acceptable to moderately high internal consistency reliability estimates (α = .69 to .91). The second order internal consistencies were also acceptable (.61 to .89). These estimates indicate that the items cluster well as subscales and scales.

Relationships Within and Between Scales

Inter-correlations within and between subscales and scales were examined to determine if the scales were distinct yet related. Correlations, means, and standard deviations are provided in Tables 3 (measurement model) and 4 (instructional model).

As shown in Table 3, the correlations between the six factors in the measurement model ranged from low to moderate (r = .15 to .64). This suggests that these scales are distinct, but somewhat related. As shown in Table 4, correlations between the instructional model's subscales (*e.g., self-efficacy, mindset, mastery orientation, and anxiety*) within a given scale (*e.g., motivation*) were generally greater than the correlations with subscales from different scales. For example, evaluation, monitoring, and planning were highly correlated with each other (r = .68 to .79), and highly correlated with their respective *metacognition scale* (r = .86 to .95), as expected. In contrast, the three *metacognition subscales* were less strongly correlated with the *motivation scale* (r = .36 to .44) and the *strategies scale* (r = .56 to .62), also as expected.

Strategies for managing environment, managing time, help-seeking, and strategies for understanding were moderately correlated with each other (r = .32 to .50), and highly correlated with their respective *strategies scale* (r = .72 to .82). As expected, the four *strategies subscales* were less correlated to the *metacognition scale* (r = .34 to .67) and the *motivation scale* (r = .33 to .45).

Interestingly, some of the correlations between the subscales within the *motivation scale* were relatively low (r = .15 to .54). This reflects the original EFA findings, which showed that the four *motivation subscales* loaded as distinct factors, and the two subscales that did load together (s*elf-efficacy and mastery orientation*) resulted in low internal consistency (α = .28). For practical and instructional reasons, they were grouped into one scale—*motivation*—for which the CFA produced good model fit. The correlations between these subscales and their respective *motivation scale* (r = .62 to .76) were higher than those with the *metacognition scale* (r = .22 to .46) and the *strategies scale* (r = .32 to .49).

Discussion

The DAACS SRL survey was designed as a part of the DAACS system to identify students' self-regulatory strengths and weaknesses, and offer feedback and resources for improvement in weak areas. The purpose of this study was to provide validity evidence regarding the internal structure of the survey. Two models that serve different purposes each resulted in acceptable model fit. The measurement model comprised six factors with six to thirteen items in each factor. The instructional model comprised 11 first-order factors and 3 second-order factors, with three to six items in each first-order factor. The factors in both models are conceptually aligned with our theoretical framework for self-regulated learning, which encompasses metacognition, motivation, and strategies for learning. The internal consistency estimates for the scales and subscales of the models also provide evidence of the reliability of the inferences made by both structures. The CFA results and the internal consistency estimates provide promising empirical evidence for validity regarding internal structure.

In accordance with Kane's (2013) interpretation/use argument validity framework, we began by articulating the assumptions on which the survey was based. The first assumption highlighted the need for validity evidence regarding the internal structure of the survey. Based on a large sample, the findings supported the hypothesized structure of SRL as having three main components – metacognition, motivation, and learning strategies – for both the measurement and instructional models. Furthermore, items that loaded on the metacognition factor were related to planning, monitoring, and evaluation, all of which were key metacognitive processes (Lai, 2011), generally consistent with the Regulation of Cognition scale of the *Metacognitive Awareness Inventory* (Schraw & Dennison, 1994). The motivation scale encompassed items related to self-efficacy, mindset, goal orientation, and anxiety. Although they are distinct constructs, they are beliefs and emotions known to influence motivation (Pintrich, 2004). Items that loaded under the strategies category were behavioral in nature, and included strategies for managing time, environment, understanding, and learning, including help-seeking. These items and subscales are consistent with the Seeking and Learning Information and the Behavior and Environment Management factors from the SRSI (Cleary, 2006; Cleary, Kettler, & Dembitzer, 2015). In sum, in addition to empirical evidence for its internal structure, there is also strong conceptual alignment between the DAACS SRL survey and the research literature.

Implications

Statistical comparisons indicated the model fit of the instructional model was better than the measurement model; however they both had acceptable fit statistics according to Hu and Bentler's (1999) criteria, and both models are appropriate depending on the intended uses of the survey. For research and analytical purposes (e.g., predictive modeling, cluster analyses), the measurement model would be more appropriate to use, as it is the simpler model, without second order latent variables. If, on the other hand, users are interested in the SRL survey for self-improvement, advisement, or instructional purposes, then the

Table 3
Means, Standard Deviations, and Correlations between Scales of the Measurement Model

Scales (# of items)	MM	MS	AN	MTC	S_TE	S_UHS	M (SD)
MM (8 items)	1.00	--	--	--	--	--	3.3 (0.44)
MS (6 items)	0.30	1.00	--	--	--	--	3.1 (0.64)
AN (6 items)	0.39	0.15	1.00	--	--	--	2.8 (0.77)
MTC (13 items)	0.50	0.26	0.22	1.00	--	--	2.7 (0.63)
S_TE (6 items)	0.41	0.25	0.32	0.47	1.00	--	2.8 (0.60)
S_UHS (8 items)	0.49	0.31	0.27	0.64	0.54	1.00	3.2 (0.52)

Note: Mastery Motivation (MM), Mindset (MS), Anxiety (AN), Metacognition (MTC), Strategies for Managing Time and Environment (S_TE), and Strategies for Managing Understanding and Help-Seeking (S_UHS)

Table 4
Means, Standard Deviations, and Correlations within and between Scales of the Instructional Model

Scales and Subscales (# of items)	MOT	MO	SE	MS	AN	MTC	PL	MN	EV	STR	MT	ME	MU	HS	M (SD)
MOT (4 subscales)	1.00	--	--	--	--	--	--	--	--	--	--	--	--	--	3.1 (0.42)
MO (4 items)	0.62	1.00	--	--	--	--	--	--	--	--	--	--	--	--	3.3 (0.47)
SE (4 items)	0.69	0.54	1.00	--	--	--	--	--	--	--	--	--	--	--	3.3 (0.53)
MS (6 items)	0.65	0.26	0.27	1.00	--	--	--	--	--	--	--	--	--	--	3.1 (0.64)
AN (6 items)	0.76	0.30	0.38	0.15	1.00	--	--	--	--	--	--	--	--	--	2.8 (0.77)
MTC (3 subscales)	0.44	0.46	0.42	0.26	0.22	1.00	--	--	--	--	--	--	--	--	2.7 (0.63)
PL (3 items)	0.44	0.42	0.41	0.23	0.27	0.86	1.00	--	--	--	--	--	--	--	2.8 (0.73)
MN (6 items)	0.41	0.43	0.40	0.24	0.20	0.95	0.75	1.00	--	--	--	--	--	--	2.7 (0.64)
EV (4 items)	0.36	0.40	0.34	0.24	0.15	0.91	0.68	0.79	1.00	--	--	--	--	--	2.5 (0.72)
STR (4 subscales)	0.53	0.49	0.42	0.32	0.33	0.64	0.62	0.59	0.56	1.00	--	--	--	--	3.0 (0.49)
MT (3 items)	0.45	0.41	0.35	0.24	0.30	0.49	0.47	0.44	0.44	0.77	1.00	--	--	--	2.7 (0.65)
ME (3 items)	0.33	0.28	0.23	0.18	0.24	0.34	0.34	0.29	0.30	0.72	0.48	1.00	--	--	2.9 (0.75)
MU (5 items)	0.44	0.46	0.41	0.28	0.22	0.67	0.64	0.64	0.57	0.82	0.48	0.39	1.00	--	3.1 (0.55)
HS (3 items)	0.40	0.32	0.28	0.25	0.27	0.40	0.39	0.37	0.35	0.72	0.43	0.32	0.50	1.00	3.3 (0.66)

Note: highlighted in gray are subscales within the same scale; the darker shade indicates the scales (metacognition, motivation, strategies), and the overall SRL score.
Scales = Motivation (MOT), Metacognition (MTC) and Strategies (STR)
Subscales = Mastery Orientation (MO), Self-efficacy (SE), Mindset (MS), Evaluation (EV), Monitoring (MN), Planning (PL), Anxiety (AN), Managing Time (MT), Managing Environment (ME), Understanding (MU) and Help-seeking (HS)

instructional model is more appropriate, given that the first and second order factors provide conceptual clarity. For example, if a student scored low on the metacognitive scale, the student and advisor could focus on making improvements to planning, monitoring, and evaluation, each of which hang together conceptually and can be taught and learned.

This dual model approach appears to be unique. Although the proposed uses of many SRL measures include both research and practical assessment (e.g., SASR [Dugan & Andrade, 2011]; MSLQ [Pintrich, et al., 1993], MAI [Schraw & Dennison, 1994]; LASSI [Weinstein, Palmer, & Shulte, 2002]), only one structure is generally used for both purposes. One model might be preferable for prediction purposes, but could be less informative to students and advisors who use it for instructional purposes. By acknowledging both the prediction aspect and the diagnostic quality of the DAACS SRL survey, one survey can serve multiple purposes.

Limitations and Future Directions

The findings and proposed uses of the DAACS SRL survey should be considered in light of several limitations of the study. One of the main limitations is its generalizability. Although the sample was large, it included only students from two online universities, most of whom were non-traditional, adult learners. This could limit the degree to which the findings can be generalized to traditionally-aged college students.

The second limitation is the small number of items per subscale. In order to align with our definition of self-regulated learning, the survey was designed to measure a broad range of constructs, including motivation, metacognition, strategies, and the skills, processes, and beliefs within each of these. To minimize the threats to validity that could arise from survey fatigue, we limited the number of items that represent each of the constructs being measured. The small number of items per subscale might be an underrepresentation of each of the subscales; at the same time, adding more items could prevent students who are not required to take the survey from using the DAACS unless they are highly motivated. For this reason, we have followed guidelines and ensured that each subscale has at least three items (Carpenter, 2018; Costello & Osborne, 2005).

In spite of these limitations, the model fit indices of the two confirmatory factor analyses indicated that the hypothesized factor structure with scales and subscales fits the data well, allowing us to retain two models that represented the theoretical framework used to develop the survey. In spite of the small number of items per subscale, the generally moderately high reliability estimates revealed internal consistencies of the scales and subscales of both models; the correlations between subscales within and among scales were generally as hypothesized. The survey's scales and subscales function well, and are important for it to serve its diagnostic and instructional purposes (Davison, Davenport, Chang, Vu, & Su, 2015). The CFA results, internal consistency reliability estimates, and correlations provide promising evidence in support of the internal structure of the DAACS SRL survey. Future studies will involve the collection of other types of validity evidence to support the three assumptions about the DAACS SRL survey. Data from a sample of students in traditional colleges is also needed to determine if the internal structure of the survey is generalizable.

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APPENDICES
Appendix A
Established Reliability and Validity of Scales used to Construct the DAACS SRL Survey

Reliability
Reliability coefficients from previous research on each of the scales.

Scale	Cronbach's alpha	Norming Sample
SASR Self-Regulation	.86	n=205 for pilot study n=491 students from a public university and a private 4-year college.
Mindset	.94 to .98 for 3 *'d items (Dweck et al., 1995) .78-.77 with 6-items (Blackwell, et al. 2007)	6 validation studies with various samples, including college students.
Self-Efficacy for Learning with Self-Paced Online Training	.87	Study 1(n=204) U.S. Navy personnel Study 2 (n=646) Study 3 (n=481) – undergraduates from the U.S. Naval Academy
Westside Anxiety	Not reported	Sample 1 (n=25) anxious college students Sample 2 (n=34) anxious 5th grade students.
*MAI "Regulation of Cognition" (*planning, monitoring, evaluation, debugging, and information management)	Regulation of cognition: alpha=.91; .88 Overall: alpha=.95; .93	Experiment 1 (n=197) undergraduate students Experiment 2 (n=110) undergraduate students
SRSI—maladaptive regulatory behaviors	.72	142 9th and 10th grade students.
SRSI—managing behavior and environment	.88	
SRSI–seeking and learning information	.84	

Validity
Existing validity evidence

Scale	Validity Evidence
SASR Self-Regulation	***Convergent and discriminant validity:*** SASR compared with LASSI (Weinstein et al., 2002) and MSLQ (Pintrich et al., 1991) provided moderate support for SASR validity. The best validity evidence was found in the EXTR, INTR, PRC, and SE (META and SRL could be explained theoretically and in context with the LASSI and MSLQ aims for measuring these constructs). Further validity evidence provided by examination of SASR and course grades and GPA; anticipated "predictive" results (except EXTR).
Mindset	(for the 3 *'d items, Dweck, et al., 1995) ***Convergent validity:*** implicit person theory was significantly predicted by intelligence theory ($B=.32$, $p=.0001$) ***Discriminant validity:*** not significantly related to measures of cognitive ability, confidence in intellectual ability, self-esteem, optimism or confidence in other people and the world, social-political attitudes, and political conservatism or liberalism (with 6 items, Blackwell, et al., 2007) ***Predictive validity:*** growth mindset predicted upward trajectory in grades over 2 years; fixed mindset predicted flat trajectory intervention involving teaching incremental mindset to students improved classroom motivation
Self-Efficacy for Learning with Self-Paced Online Training	***Criterion-related validity:*** -OLVSES comparison to Pekrun, Goetz, and Perry (2005) negative achievement emotions boredom and frustration subscales; -OLVSES comparison to MSLQ (Pintrich et al., 1993) elaboration and metacognitive self-regulation subscales. -Self-Efficacy scale was significantly related to negative achievement emotions for boredom ($r=-0.31$, $p<0.001$) and frustration ($r=-0.30$, $p<0.001$) and to elaboration ($r=0.27$, $p<0.001$) and metacognitive strategies ($r=0.20$, $p<0.001$) as would be expected.
Westside Anxiety	***Face validity:*** similar items to other anxiety scales (e.g., Cassady-Johnson's Cognitive Test Anxiety Scale; Alpert-Haber's Debilitative Anxiety Scale). This scale represents the cognitive impairment, and not the physiological over-arousal component of anxiety. ***Predictive validity:*** Correlation between anxiety-reduction on Westside scale and test gains was $r = .49$ ($df = 23$, $p < .01$) in one study ($n=25$, college students), and $r = .40$ ($df = 32$, $p < .01$) in another ($n=34$, fifth graders), suggest average weighted scale validity of $r=.44$. This indicates strong correspondence between anxiety-reduction and objective test gains.
MAI "Regulation of Cognition"	the two MAI categories are somewhat related: knowledge and regulation of cognition ($r=.54$; .45);

Scale	Validity Evidence
	Predictive validity:
	MAI and metacognitive knowledge about one's monitoring skills: non-significant (MANOVA with 2 categories as DV; $F(6,210)=1.89$, $MS=.476$)
	MAI and test performance: knowledge of cognition was statistically related to higher test performance; regulation of cognition was not (in reading comprehension).
	MAI and monitoring accuracy: no significant differences in MAI across groups with different monitoring accuracy
	AKA MAI has little predictive power.
SRSI-maladaptive regulatory behaviors *SRSI-managing behavior and environment* *SRSI – seeking and learning information*	***Convergent and discriminant validity:*** principal component analysis with 3 subscales, and two self-motivational belief measures (TII and PII). All three subscales of the SRSI-SR loaded onto one higher order factor of self-regulation strategy use (loadings = .83 to .71; convergent validity), while TII and PII loaded onto another, which is consistent theoretically (evidence of discriminant validity). ***Predictive validity:*** Examination of achievement groups was consistent with previous research (lower-achieving students scored lower on SRSI-SR subscales, except the Maladaptive subscale, as anticipated).

Anchor and Launching Pad: The Role of a Latino Cultural Center in Latinx College Student Success at a Historically White Institution

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This exploratory case study examined the role of an ethnic cultural center in the experience of Latinx students at a historically White institution (HWI) located in the Midwest. Validation theory served as a theoretical framework to guide the data analysis. The research site was the Latino Native American Cultural Center (LNACC) at the University of Iowa. Eleven undergraduate Latinx students and six university staff members participated in a series of interviews during a 6-month period in 2013-14. Data analysis revealed four themes: Getting Connected, The LNACC Vibe, Anchor and Launching Pad, and Latinx Presence. Each theme provided insights into how a cultural center promotes the success of Latinx students at a HWI.

Keywords: Latinx students, cultural center, transition

> *It was because of the cultural center that I and others survived as students, because of the important space we were provided with—a space which embraced who we were without explanation.*
>
> —Dr. Nancy "Rusty" Barceló, 1996

Ethnic cultural centers first began to appear on college campuses in the Midwest in the early 1970s following the peak years of campus unrest and student protests of the 1960s. It was during this time that many institutions of higher education began addressing issues impacting diverse populations, which led to changes in the curriculum, recruitment practices, facilities, and support services (Astin, Astin, Bayer, & Bisconti, 1975). The development of cultural centers changed the landscape of higher education at historically white institutions (HWIs) by creating spaces and places focused on serving the needs of underrepresented racial/ethnic groups while promoting overall campus diversity.

Latino[1] cultural centers first began appearing at HWIs in the Midwest in the early 1970s—around the same time the Chicano Movement was reaching the Midwest from California. Like their Black cultural center counterparts, the first Latino cultural centers were created as a response to student demands for greater resources to address the needs of minoritized students – in this case, Chicano[2] and Puerto Rican students. Many of these centers served as hubs of activity where Latinx students engaged in lively discussions regarding issues impacting their communities. They provided a space for Latinx students to plan and participate in community outreach, publish newsletters and literary magazines, coordinate political activities, and express themselves artistically (Lozano, 2010).

While the Latinx student population increased in the 1980s and 1990s, Latino cultural centers in the Midwest continued to serve as critical spaces and places for students to meet and engage in social, cultural, and political activities. In 1992, at the University of Illinois Urbana–Champaign, Latinx students staged a historic protest on campus culminating in a list of demands, which included funding and greater autonomy for their cultural center, La Casa Cultural Latina (Student Life and Cultural Archival Program, 2010). Meanwhile, at the University of Iowa (UI), students used the Latino Native American Cultural Center (LNACC) as a home base to organize and establish some of the first Latinx-based Greek organizations in the nation: Sigma Lambda Beta Fraternity, established in 1986 (Sigma Lambda Beta International Fraternity, n.d.), and Sigma Lambda Gamma National Sorority, established in 1990 (Sigma Lambda Gamma National Sorority, Inc., n.d.). These are just a few of the formative events that took place within Latino cultural centers throughout the Midwest in the final decades of the 20th century.

The arrival of the 21st century found many cultural centers at a crossroads. Often located in older, deteriorating houses or buildings, their survival became tenuous as budget constraints and competing political interests made it challenging to secure the institutional support necessary for centers to thrive (Hefner, 2002). HWIs began to grapple with the future of ethnic cultural centers and, in some cases, made the controversial decision to replace them with multicultural centers (Princes, 1994). Meanwhile, cultural center stakeholders argued that cultural centers have been vital to the success of marginalized populations (Barceló, 1996; Hefner, 2002; Hord, 2005; Patton, 2010). For instance, a University of Iowa (2006) Diversity Action Committee report listed revitalizing the campus cultural centers as one of its main recommendations to the university, stating: "The cultural houses have historically played a significant role in students' lives and had a beneficial impact on minority student retention and academic success" (p. 15). In her research on Black cultural centers, Patton (2006) found that "these centers make a powerful difference in

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[1] The term "Latino" is used when presenting historical information on cultural centers because that was (and in most cases, still is) the formal nomenclature used by the centers (e.g. "Latino Cultural Center"). The gender-inclusive term "Latinx" is used when referring to the general population.

[2] The term "Chicano" is used here because that was a common term used in the 1970s by student activists who first demanded the establishment of Latino cultural centers

student learning because they foster an environment that promotes leadership development, a sense of community, cultural identity, and a sense of mattering, all components necessary for engagement in the learning process" (p. 3).

Latino cultural centers, in particular, hold the precarious position of trying to serve ever-increasing numbers of Latinx college students, while dealing with the current political and sociocultural climate. Higher education environments are not immune from the anti-Latinx and anti-immigrant rhetoric and policies promoted by the current president and his administration. Latinx students must navigate campus environments which are directly and indirectly influenced by the larger political atmosphere. Recent federal and state budget cuts to higher education threaten equity efforts and programs for students of color, including the funding of cultural centers. This underscores the importance of research to better understand connections between Latino cultural centers and Latinx college student success.

Latinx college enrollment is projected to increase by 34 percent between 2012 and 2023 (National Center for Education Statistics, 2016), adding urgency to Ortiz's (2004) call to action for the higher education community to consider the unique needs of Latinx students and "reconsider our basic assumptions as we construct learning environments and opportunities that allow all students to participate fully" (p. 1). This increase in the Latinx college student population is juxtaposed with the current dearth of empirical literature on the role of Latino cultural centers. The lack of studies on this topic has resulted in a knowledge gap regarding how Latinx college students engage in cultural centers and what role these centers play in student success. It is not enough to point to anecdotal evidence regarding the impact of cultural centers on Latinx students. Empirical evidence, through qualitative and quantitative studies is necessary to understand how cultural centers promote the success of Latinx college students.

The purpose of this study was to examine the role of an ethnic cultural center in the experience of Latinx students at a HWI located in the Midwest. The following research question guided this study: What role does the cultural center play in Latinx student college transition and success? This study contributes to the general knowledge base regarding the experience of Latinx students at HWIs in three ways. First, it focuses on Latinx students attending a university in the Midwest—an area often neglected because larger numbers of Latinx students reside and attend colleges in the West and Southwest. Second, it helps to close an existing knowledge gap regarding the role of Latinx cultural centers at HWIs. Third, it examines the role of a cultural center from Latinx student perspectives.

Methods

This study is informed by the literature on Latinx student success at Historically White Institutions (HWIs). The concept of "student success" encompasses both in-class and out-of-class experiences and includes both cognitive and affective elements. As the body of research on issues impacting the retention and persistence of students of color has grown, some scholars have begun to embrace a more holistic view of student success—one that goes beyond institutional data indices and numerical representations (Castellanos & Gloria, 2007; Osei-Kofi & Rendón, 2005; Reason, 2009; Schreiner, 2013). As a Chicana who attended a HWI in the Midwest and has worked with Latinx college students at large research universities over the past 20 years, I came to understand that some students persist to graduation without ever achieving a sense of belonging on campus. This is the difference between the traditional notion of succeeding (graduation) and the more holistic view of success that includes thriving in and out of the classroom in an environment that recognizes and validates cultural differences. This study focuses on the latter as it applies to student experiences at an ethnic cultural center.

This study was also informed by Rendón's (1994) validation theory. Validation theory speaks to the needs and strengths of first-generation, low-income students with a focus on student success (Rendón, 1994). Based on a qualitative study of diverse students attending four different colleges, the concept of validation emerged as a critical element to student success. Rendon defined validation as a process by which in- and out-of-class agents (i.e., faculty members, students, staff, peers, family members) engage in intentional and proactive affirmation of students "as creators of knowledge and as valuable members of the college learning community" (Rendón & Muñoz, 2011, p. 12). Thus, validation may occur at both the academic level and the interpersonal level, providing a more holistic lens through which to examine student success. Rendón theorized that "for many low-income, first-generation students, external validation is initially needed to move students toward acknowledgment of their own internal self-capableness and potentiality" (p. 17).

Additional findings from Rendón's (1994) study suggest that first-year success may be contingent upon students getting involved in institutional life, either on their own or through validating agents. Based on her findings, Rendón argued that even the most vulnerable students can be transformed into powerful learners through the validation process and that validation may be a prerequisite for involvement to occur. Although Rendón recognized that validation can take place in and outside the classroom, she focused mainly on what constitutes a validating classroom and how faculty members may serve as validating agents. This study is focused on student experiences outside the classroom, thus expanding our understanding of how validation theory is connected to student success.

Research Site

This study took place at the University of Iowa (UI) Latino and Native American Cultural Center (LNACC). UI is a large, historically White research university located in Iowa City, Iowa. At the time of this study (2012-2013), the total student enrollment was 30,119. Out of 21,999 undergraduate students, 1,166 (5.3%) identified as Hispanic and 48 (0.2%) identified as American Indian or Alaskan Native (The University of Iowa, 2012–2013). This study focused on Latinx undergraduate students who were participating in LNACC activities.

The LNACC is one of three ethnic cultural centers on campus, all of which are located within a few blocks of each other on the

west side of campus. Two of the centers—the LNACC and the Afro American Cultural Center—were founded over 40 years ago. The Asian Pacific American Cultural Center was established in 2003 (Center for Student Involvement and Leadership, n.d.). Each center is located in a stand-alone house, and at the time of this study, they all reported to the Coordinator for Multicultural Programs and Cultural Centers in the Center for Student Involvement and Leadership. A unique aspect of this cultural center is that it serves both Latinx and Native American communities. This model stems from the original founders of the LNACC —two Chicano/a students and one Native American student—who, recognizing their shared experiences of oppression and marginalization, formed a coalition to address issues impacting their communities (Solis, 2011). Although the study focused only on Latinx students, I recognized the importance of examining how the historical and contemporary context of my research site shaped the experience of my research participants and included this aspect of the cultural center in my research design, specifically in my interview protocol.

Participants

Eleven self-identified undergraduate Latinx students participated in this study. Participants were selected through purposeful sampling. Maximum variation within the sample focused on participants' year in college (first-year/freshman, sophomore, junior, senior), college major, generational status in the U.S. (first generation, second generation, etc.), permanent residency (in-state vs. out-of-state resident), and current residence (on campus vs. off campus). I also interviewed six full-time professional staff members, three of whom were directly affiliated with the LNACC and three of whom were indirectly affiliated. However, this article centers the voices of the Latinx student participants, so data from the staff interviews is included only briefly to supplement student voices.

I used multiple strategies to recruit a diverse sample of Latinx undergraduate students for this study. First, I reached out to specific key informants—UI staff members—to assist with recruitment of participants. Jones, Torres, and Arminio (2006) point to key informants as "integral to identifying the most suitable participants for a study because of their insider status (p. 74). I contacted student affairs colleagues at UI to inform them of my study and requested their assistance in recruiting participants. Three key informants were particularly helpful in sharing information about my study with students. They included two staff/administrators at the Center for Student Involvement and Leadership and one staff member at the Center for Diversity and Enrichment. I provided them with an email announcement and call for research participants which they then forwarded to various Latinx undergraduate student listserves. Second, I posted flyers at the LNACC. The flyers provided brief information about the topic of my research study along with instructions to contact me if interested in learning more about participating in the study.

Participant demographic information is provided in Table 1. To protect the participants' identities, I have not matched any of the demographic data points for any individual students

(e.g., male, senior, out-of-state resident, etc.). I also was interested in achieving ethnic diversity in the sample; however, because all but one student identified their ethnic background as Mexican or Mexican American, I was not able to achieve an ethnically diverse Latinx sample. Only one first-year (freshman) student participated in the study because the interviews were conducted in September and October of the Fall semester, with the call for participants going out in August. Thus, newly enrolled Latinx students had just arrived on campus, making it unlikely for them to respond to the call for participants due to their unfamiliarity with the notion of participating in a research study.

Table 1.
Student Participant Demographics

Characteristic	N
Sex	
Males	3
Females	8
Residency	
In state	6
Out of state	5
Year in college	
Senior	4
Junior	3
Sophomore	3
First-year/Freshman	1
Course of study	
Double major, minor, and certificate	1
Double major and certificate	3
Double major	2
Major and minor	2
Major and double certificate	1
Major	2
Generational Status in U.S.[3]	
Second generation	9
Third generation	2

Data Collection Procedures

Key components of a good qualitative case study include the presentation of rich description and in-depth understanding of the case, which requires the researcher to collect multiple forms of data (Creswell, 2013). Merriam (1998) argued that "any and all methods of gathering data, from testing to interviewing, can be used in a case study" (p. 28). Data for this study consisted of interviews with students, observations of the physical environment of the research site, and document analysis. I adopted a modified version of Seidman's (2006) "three-interview series" model. In Seidman's model, the first interview puts the participant's experience in context by revealing background characteristics and experiences as they relate to the research topic. The second interview centers on concrete details of the participant's lived experiences related to the research topic. During the final interview the participant reflects on the meaning of their experiences. I used a two-interview process, combining Seidman's second and third goals into the second round of interviews due to the difficulty of scheduling a third round of interviews with students within one academic year. All three of Seidman's interview goals were accomplished in my modified process as explained in the next section.

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[3] Second generation: born in United States, with at least one foreign-born parent; third generation: born in United States, with both parents born in United States.

Interviews. I conducted individual interviews with 11 self-identified Latinx undergraduate students. Each student participant was interviewed twice for approximately one hour. The first round of student interviews was conducted in the fall semester (September and October) at the LNACC or other locations convenient for each participant. The interview began with structured questions regarding the participants' background, followed by open-ended questions regarding how the participants were introduced to the LNACC and level of participation in LNACC activities. This is consistent with Seidman's (2006) first-round interview purpose: to reveal background characteristics and experiences as they relate to the topic. The second round of student interviews was conducted six months later in the following spring semester (March and April), either face-to-face or by telephone. These interviews focused on what the LNACC experience meant to the participant and explored concepts that emerged from analyzing the transcripts from the first interviews. This is consistent with Seidman's second- and third-round interview purposes: to gain concrete details regarding lived experiences and how participants make meaning of those experiences. An open, semi-structured interview protocol was used for the student interviews. Each interview was audio recorded and transcribed verbatim.

Observations. I visited the LNACC several times to conduct student interviews. Those site visits provided an opportunity to examine physical aspects of the center including size, geographic location, artwork, furniture, technology, etc. I also attended one student meeting and one social event at the LNACC. I assumed an "observer as participant" stance during my observations, which means that my role as a research observer was known to the participants and that my participation in the activity was secondary to my role as a researcher gathering information. When I attended the social event at the LNACC, I interacted with other participants, but my main focus was on observing the physical setting, participants, interactions, and my own behavior. Gaining access to the site was not an issue, because the LNACC was open to the public and the events I attended were not private. During my site visits, I was cognizant of my role as an observer/participant and the ambiguity of being both a participant and an observer. My observations during the student organization meeting and the social event each lasted 30 minutes.

Document Collection. In addition to interviews and observations, I also collected documents related to the LNACC. I examined the LNACC website to gain insight on the mission of the center as well as its programs and services. While the official LNACC website provided an institutional perspective, reviewing the LNCC Facebook page for the academic year in which the study was conducted provided more of a student perspective (e.g. sharing of cultural, social, political news/activities important to students). Campus newspaper articles, along with LNACC archival materials located in the UI Main Library provided a historical perspective. Thus, document analysis provided context to the case site in three ways: (a) background information on the LNACC's history and original purpose, (b) insight into how the LNACC is currently portrayed in public media outlets, and (c) understanding of how current students perceive the LNACC.

Data Analysis

I used Merriam's (1988, 1998) process for analyzing case study data and category construction. The first level of analysis involved rereading transcripts and other data combined with memo writing, which helps the researcher "hold a conversation" with the data—asking questions about what is missing, making connections between the interview transcripts and making comments about the data (Merriam, 1998). This first level of analysis illuminated preliminary themes and patterns. The second level of analysis involved coding of the data into units, which became conceptual categories. The third level of analysis consisted of developing broader themes. Merriam (1998) stated that this level of analysis moves the researcher toward the development of a theory that "seeks to explain a large number of phenomena and tell how they are related" (p. 146). For my case study, rather than generating theory, I was interested in understanding the role of the LNACC in the experiences of Latinx students at UI.

Trustworthiness

Several strategies were employed to ensure trustworthiness of the data. First, triangulation of the data was built into the research procedures through a combination of participant interviews, researcher observations, and document analysis. I also conducted member checks with the participants to ensure accuracy and credibility of the case study account. A third technique to ensure trustworthiness and authentic research was using rich, thick description in my written account. Throughout the data analysis process, I also utilized a peer debriefer to gain an outside perspective regarding my rendering of conceptual categories and themes.

Results

An analysis of the data revealed four key themes: 1) getting connected, 2) the LNACC "vibe," 3) LNACC as anchor and launching pad, and 4) Latinx presence on campus. The first theme, getting connected, provides an understanding of the multiple ways in which the student participants were able to get connected to the LNACC, and that led to continued engagement with the center. The second theme, the LNACC "vibe," illuminates how students made meaning of their experiences at the LNACC, a space that many of the participants referred to as having a unique "vibe" or essence. The LNACC as anchor or launching pad theme represents the various temporal experiences of students as they either moved from frequent to infrequent engagement with the LNACC or continued to have a strong connection to the LNACC. The final theme, Latinx presence on campus, reflects the students' expressed desire for visibility on campus and their perception of the LNACC as a representation of the Latinx presence. These themes are described through the perspectives and voices of the Latinx students who participated in this study. Pseudonyms are used for each participant.

Getting Connected

The student participants in this study described multiple paths to getting connected to the LNACC. A majority of the students had participated in various college-bound programs for racially/ethnically underrepresented or first-generation students. These programs coordinated purposeful activities, including intentionally introducing students to the campus cultural centers prior to their enrollment at UI. Two of the students in this study were exposed to the LNACC through a merit and need-based scholarship program for first-year students of color who are U.S. citizens or permanent residents and / or first-generation college students. Other students were introduced to the LNACC by their advisors or by a family member who was an alumnus. Upper-level students (juniors and seniors) also played a key role in encouraging some of the participants to engage in LNACC activities.

Though the students may have taken different paths to their introduction to the LNACC, the experience influenced each of them to return to the center and become active participants. They reflected on what it meant to them to get connected to other Latinx students at the LNACC. Elisa connected to the LNACC through a peer mentor who was also a Latina student. The first thing Elisa noticed upon entering the LNACC was all of the photos of Latinx students, which helped her realize she was not alone. Elisa, like all of the students in this study, was drawn back to the LNACC because of the opportunity to connect with a group of peers. Teresa, a transfer student, joined two Latinx-based student organizations during her first semester on campus. Both organizations were affiliated with the LNACC, so she was there weekly. She explained:

> I felt so deprived of my Latinidad…I just wanted to be surrounded by people who can speak Spanish and who aren't going to be bothered if I play bachata or cumbia or banda [Latino music genres] or whatever. And so I just kinda wanted a sense of community and just [to] be a part of something bigger than myself.

Teresa eventually would apply for a position at the LNACC as a work–study student, so she spent a significant amount of time at the center. Several other students commented that Teresa was looked up to as a resource and a role model.

Omar, who learned about the LNACC later than the other students in this study, believed it was inevitable that he would find his way there:

> I feel like, at some point or another I would have ended up here, regardless, just because . . . I love my culture, I love every aspect of it and . . . I feel like this is a place where I can . . . .share it with others as well.

Omar was struck by the welcoming atmosphere of the center, the artwork, and the sense of history portrayed through photos of Latinx students from previous years. However, he was somewhat resistant to get involved in LNACC activities at first: "I wasn't sure what to expect—like if this was actually, like, what I was looking forward to or if this was just going to be some like, pseudo-cultural thing, if you know what I mean." Based on their own positive engagement at the LNACC, most of the students interviewed were passionate about making sure that new students

had the same opportunity to experience the LNACC vibe, which is the second theme identified in this study.

The LNACC "Vibe"

In discussing the LNACC, many of the student participants described the facility as having a certain vibe or essence. This was a feeling they experienced when they walked into the LNACC and engaged in activities within the LNACC space. Based on their voices, the LNACC vibe consisted of several elements, both abstract and concrete, including a feeling of home (comforting and welcoming), the expression of Latinx culture (language, music, food, dance), and a sense of empowerment through the portrayals of significant Latinx historical figures (art).

Noel recalled how he felt the first time he walked into the LNACC: "I kind of got the vibe and just the, like the essence of it being like my grandma's house, my abuela's house." Elisa described the positive feelings she had the first time she entered the LNACC because of "the vibe" she experienced. She explained what she meant by the vibe:

> I feel like… I don't know if it's just because the color red happens to be warm, but… it's relaxing too. I go there to study sometimes, and I feel like I can get work done there, and it's also I guess, playful, since I go there and I'm talking with my friends, and we'll just be laughing or just playing.

What Elisa was describing was a feeling of being comfortable in a physical space. Others, such as Monica, described this as a home-away-from-home feeling: "Like I always say, it always feels kind of like a home away from home. Like it's very relaxed. It's just a very, like, comforting atmosphere." Monica pointed to the kitchen as one of the spaces within the LNACC that fostered a feeling of home because she could cook favorite cultural dishes there. Omar

added: "I come [to the LNACC]… and I can listen to any type of music and I feel at home." The home-away-from-home sentiment was perhaps explicated most directly by Victor, who said:

> All 20 years of my life, I grew up in a house, I understood the feeling of "I'm home" as soon as I walk into a house. So that definitely has transferred over a bit to the LNACC… it's very easy to feel that feeling again when I walk into it.

Ten of the 11 student participants described the LNACC as a home away from home. Three students also associated feelings of home with their involvement in Latinx student organizations that were closely affiliated with the LNACC. However, some students pointed out that the home-away-from-home vibe at LNACC could be a double-edged sword causing some Latinx students to avoid it precisely because it reminded them too much of home at a time when they were searching for different experiences. Several of the staff members who participated in this study viewed the purpose of the LNACC as a home away from home for Latinx students. One staff member affiliated with the cultural centers explained that the LNACC staff (student workers) were trained to welcome others into the cultural center as if welcoming them home. Both the students and the staff members who participated in this study emphasized the significance of the home-away-from-home aspect of the LNACC. Students alluded to other aspects of the LNACC

that contributed to its vibe including a sense of cultural community and the significance of the artwork at the center.

Another element essential to the LNACC vibe was a sense of cultural community, which included food, language, music, and dance. Patricia described how easy it was for her to connect with others at the LNACC:

> I just found it easy meeting new people that I guess identified as well as me, as being a Latino, and you know, spoke Spanish. We had similar cultural backgrounds in the sense of things that we could relate about family or traditions. And so I knew that every time that I would be in there, I would be in some sort of contact with someone that I could relate with.

Based on the student interviews, the LNACC Facebook page, and my observations, other than student organization meetings, the majority of events that took place at the LNACC were social/cultural in nature. A few of the students expressed a desire to have more educational, political, or community service events at the LNACC, but they were aware that other students seemed to be drawn mostly to the social/cultural aspect of the center.

A final aspect of the LNACC vibe relates to the artwork within the center. The LNACC is filled with colorful murals, paintings, and photos representing Latinx and Native American culture. The warm colors of the LNACC and the vivid artwork on the walls had immediately captured the attention of the students the first time they entered the center. For all of the students interviewed, this was the first time they had experienced a Latino cultural center. Teresa, one of the LNACC student workers, described the significance of the artwork to her:

> I feel like the LNACC has played a large part in my self-discovery and identity as a Latina in a predominately White institution just because I feel like, even just working here and having a place to come and seeing Frida [Kahlo] on the wall and Che Guevara, Pancho Villa… it's very comforting, whether I realize it at the moment or not. And I think it just goes back to acknowledging my roots and kind of developing that… It's been a part of my self-discovery.

Most of the students commented on the large mural painted directly on a wall in the living room. Originally painted in 1974 by California muralist Manuel Unzueta during a national Chicano conference at UI, the painting underwent a revision in 2000, which caused some controversy (Hebeler, 2001). The controversy was addressed in a historical display. One of the staff members interviewed for this study was working at the university library and had created a large display of LNACC history for the occasion of the LNACC's 40th anniversary celebration. The display was placed in an entranceway at the LNACC where it was the first thing a visitor would see upon entering the facility. The display included photos of students from previous decades, newspaper articles, posters, and written text explaining the history and evolution of the LNACC. One portion of the display focused on Latinx students and the other portion focused on Native American students.

Some of the students had participated in LNACC's 40th anniversary celebration in 2011 and had gained a deeper sense of the history of the center. Noel described his reaction to meeting Dr. Rusty Barceló, one of the founders of the LNACC:

> She was really, really, really, informed about the LNACC, and it was just great to hear her story, great to hear just her struggle… just to get the house [LNACC], and I think that's something that I didn't think about. I really didn't think about, you know, the people before me and how much they struggled just to get that house and that's something that, you know, I realize… I took the LNACC for granted. And I didn't appreciate it as much as I should have.

Noel also pointed out that the LNACC artwork was diverse in terms of reflecting Latinx and Native American culture. Similar to Noel, most of the students in this study appreciated the mix of Latinx and Native American artwork within the center. However, they also indicated that they had very limited interactions with the Native American community on campus, which they attributed to the small numbers of Native American students at UI.

Anchor and Launching Pad

After being introduced to the LNACC and experiencing it as a welcoming, comfortable, and culturally relevant space, students joined one or more of the student organizations affiliated with the center. These organizations include ALMA (which translates to "soul" in Spanish), Sigma Lambda Beta International Fraternity, Inc., and Sigma Lambda Gamma sorority. The Native American Student Association (NASA, formerly known as the American Indian Student Association or AISA) is also affiliated with the LNACC, however none of the students interviewed for this study was involved with AISA. Ten of the 11 students in this study had joined one or more of the three student organizations (ALMA, Sigma Lambda Beta, or Sigma Lambda Gamma) sometime during their first year at Iowa. Only one student was not a member of ALMA or the Greek organizations; however, she was a member of The Iowa Edge Student Association. The LNACC, through its strong affiliation with ALMA, Sigma Lambda Beta, and Sigma Lambda Gamma appeared to have served as either an anchor or a launching pad for students.

The students in this study were drawn to the LNACC during their first year at UI because they were seeking connections with other Latinx students. Subsequently, they spent a significant amount of time and energy participating in LNACC programs. For some students, the frequency of their participation in LNACC activities decreased significantly after their sophomore year as they moved on to other activities. These students recognized and were able to discuss the benefits they attained from their LNACC activities, particularly through involvement with ALMA, which provided them with the opportunity to meet and connect with other Latinx students on campus as well as to acquire a wealth of leadership skills. They did not completely disassociate with the LNACC. In fact, many of them stressed that they continued to support LNACC activities through their participation in specific annual programs, such as ALMA's Back to School Bash early in the fall semester. Students also spoke of

the LNACC with great fondness, even those who were no longer regular participants; as Andrea explained: "It was like my first place where I had the chance to meet other people and socialize and feel a part of the community again. So, to me, the LNACC will always be very special." However, there was a clear pattern of students getting involved in other activities that drew them away from the LNACC after their sophomore year. Furthermore, they were joining other organizations as a result of the contacts and relationships formed at the LNACC. For those reasons, the LNACC may be viewed as a launching pad for some students—a culturally validating space and place where they were able to get connected to peers and become members of a Latinx student organization, and then move on to form connections with the broader campus community.

For some students, particularly the members of the Latinx Greek organizations Sigma Lambda Beta and Sigma Lambda Gamma, LNACC also served as an anchor. These chapters were founded at UI by students who used the LNACC as a home base. As a result, the LNACC was historically and symbolically relevant to chapter members locally and nationally. The second floor of the LNACC, which included the "Gamma room" and the "Beta room" acted as a symbolic anchor that tied current Gamma / Beta students, as well as Gamma / Beta alumni, to the center. The LNACC also served as an anchor for students who continued to stay closely connected to the center past their sophomore year. Two of these students expressed a passion for addressing political issues impacting the Latinx community, particularly immigration reform. All of the students interviewed for this project agreed that the LNACC lacked visibility on campus and expressed the need for a greater Latinx presence on campus.

Latinx Presence on Campus

The concept of a Latinx presence on campus was important to the students in this study. Most of the participants were aware that Latinx students were the largest minoritized group at UI, which caused them to wonder why there was not more of a Latinx presence on campus. They expressed concern regarding a lack of visibility of Latinx students and faculty on campus, as well as a lack of Latinx presence within the academic curriculum. Monica expressed dismay that a Latinx faculty member, whom she admired and respected, decided to leave the university because of an apparent lack of support. Other students indicated that they had never had a Latinx professor during their time at UI. The dearth of Latinx faculty members at UI, combined with the stigma of being the only Big Ten campus without a Latino Studies program, contributed to a feeling of urgency regarding the need for a greater Latinx presence on campus.

Students also expressed strong feelings about the LNACC's lack of visibility in general. They often connected this lack of visibility to the geographic location of the center. Several students shared stories about how their friends had never heard of the cultural centers. Based on the perspectives shared by the students, it was clear that they were of two minds regarding the geographical location of the LNACC on campus: they believed that it was too far

away, inconveniently located or off the radar, yet they also liked the fact that going to the LNACC meant you could get away from the hub of campus. They all wished more people knew about the LNACC but at the same time, they viewed it as an oasis—a very unique place on campus. Adding more complexity to this issue is the fact that the students' perspective regarding the LNACC location sometimes shifted as they moved past their second year on campus: the busier their schedules became, the more inconvenient the location of the LNACC became. However, both students and staff agreed on the importance of increasing student engagement in LNACC activities.

Students' experiences of marginalization and/or racial microaggressions on campus was an important aspect of Latinx presence. Most of the students interviewed had experienced the "lonely–only" phenomenon: being the only Latinx or student of color in a class or other university setting. To a certain extent, the LNACC served to mediate the negative impact of marginalization on campus, especially for first-year students, by providing a welcoming and culturally nourishing environment for Latinx students. In many ways, the students looked toward the LNACC to get a sense of the Latinx presence on campus. Teresa explained why she expended so much time and energy in planning programs at the LNACC:

> I feel that the LNACC is an important part of our campus. I wish it would have been like the first thing I had known about Iowa. Being in the state of Iowa, I just feel like it's such an important part . . . it's like "We're here!"

The potential existed for the LNACC to serve as a significant representation of the Latinx presence on campus; however, that remained an elusive goal due to a lack of resources. Without full-time staff members, a sufficient budget, or a critical mass of Latinx faculty and staff members who could support LNACC activities and serve as mentors to students, it was difficult for the LNACC to reach its full potential.

Discussion

This study examined how a cultural center promotes Latinx college student success at a historically White institution. Validation theory provided a lens through which to understand the connection between a cultural center and student success. Focusing on student experiences outside of the classroom contributes to a broader understanding of validation theory which has previously focused mainly on classroom environments. Thus, this study allows a more holistic view of student success. Rendón (1994) emphasizes that the institution plays an active role in fostering validation. She provides six elements of validation theory:

1. Validation is an enabling, confirming, and supportive process initiated by in- and out-of-class agents that foster academic and interpersonal development.
2. When validation is present, student feel capable of learning.

3. Like involvement, validation is a prerequisite to student development.
4. Validation can occur both in- and out-of-class.
5. Validation suggests a developmental process. It is not an end in itself. The more students get validated, the richer the academic experience.
6. Validation is most effective when offered early on in the student's college experience. (p. 44–45)

Three key findings illuminate the connection between validation and Latinx student success within a historically White environment. First, connecting to the cultural center early in their college experience was essential to providing the students with cultural validation and nourishment that would sustain them at a HWI. For the students in this study, getting connected to the LNACC led to their involvement in student organizations and activities congruent with their needs: connection with other Latinx students, a home away from home, nurturing space for leadership skills, or simply a comfortable place to get away from the hub of campus. The student participants in this study described the LNACC as a "home away from home," a place to connect and build community, and a comfortable space where aspects of Latinx culture (language, food, art, etc.) could be expressed and experienced. In essence, they all experienced a "sense of belonging" at the LNACC. This was particularly important for first-generation students. Ten of the eleven student participants were first-generation college students. Each of them recalled their experience as new students searching for something culturally familiar on campus. They found cultural nourishment and validation at the LNACC. The findings from this study indicate that cultural centers serve a unique role for first-generation Latinx students because they provide a space and place that validates the cultural background and knowledge of students who are searching for a sense of familiarity in a predominantly White physical, cultural, and academic environment. Connecting with the cultural center early in their college experience promotes a sense of belonging for first-generation students – something they might not find elsewhere on campus, at least not in their first semester. Thus, a cultural center can serve as a catalyst for first-generation Latinx students to develop a sense of belonging on a predominantly White campus, which in turn, may positively impact persistence and retention.

Second, students experienced validation of their own ability to develop as leaders at a HWI. As students became familiar with the LNACC and connected with peers, they began to join student organizations affiliated with the center. Upper-level students served as role models and reached out to new students to push them to engage in student organizations and prepare to take leadership positions. The older students were able to model leadership skills for new students while providing them with advice and feedback regarding organizational challenges. All of the students were able to point to the benefits and skills they gained while they were involved in the LNACC. Those skills

included connecting with a network of Latinx peers on campus, acquiring organizational skills (how to facilitate meetings, motivating student members, planning and implementing events, etc.), public speaking and interpersonal communication skills, and navigating university policies for student organizations. Some students, after acquiring and honing leadership skills through involvement at the LNACC, moved on to pursue leadership positions in student organizations outside the LNACC. Thus, the LNACC served as a "launching pad" for some students.

Finally, in serving as an "anchor" for some students and a "launching pad" for others, the LNACC accommodated varying needs for Latinx students to gain a sense of validation and success on campus. For all student participants, whether the LNACC served as an anchor or a launching pad or both, the experiences they had at the cultural center contributed to their sense of belonging and their ability to thrive as Latinx students attending a HWI by validating their Latinidad (sense of Latino-ness). At the LNACC, they built community with peers who offered support and validation as they developed their leadership capacity. For some it was the first opportunity to explore what it meant to be Latinx. Each of them felt a sense of home during a time of transition in a predominantly White environment. Not only were students thriving in the social / cultural domain through their involvement in Latinx organizations and other groups, but they were also progressing successfully in the academic world. Six of the participants were pursuing double majors; three of the six were also in certificate programs; and one of the six was pursuing a double major, a minor, and a program certificate. The LNACC complemented their academic success by providing a culturally validating space where students could feel a sense of belonging while developing as student leaders. When Latinx students experience success within the classroom, while also feeling a sense of belonging outside of the classroom, they are more likely to thrive on campus. This is the essence of holistic student success.

Limitations

The main objective of this study was to examine the role of a cultural center in the experience of Latinx undergraduate students attending a historically White institution in the Midwest. The study was limited to a select group of students who participated and were actively involved in cultural center events and activities. It is possible that the cultural center plays an indirect role in the success of Latinx students who have minimal or no involvement in in the center, but those students were not included in the study. Also, the findings from this study should not be generalized to Latinx student experiences at other cultural centers because institutional context is unique for each campus. Rather, the rich and thick descriptions provided in the findings for this study may provide insights and a starting place to explore the role of cultural centers in the success of students of color at HWIs.

Conclusion

The results of this study clearly indicate the importance of a

cultural center in the experience of Latinx students to a HWI by providing a home away from home, cultural validation, a sense of belonging, and an opportunity to develop leadership skills with Latinx peers. The campus environment is complex and multidimensional. For Latinx students who attend HWIs, issues of race, class, and privilege permeate everyday experiences. Although this study was conducted prior to the 2016 U.S. presidential election, the findings are particularly relevant in today's fraught political climate where anti-Latinx sentiment is expressed openly by politicians like Congressman Steve King (Ta, 2018) who represents the 4th District of Iowa, and is spread throughout social media platforms. Latino cultural centers can serve as critical resources to support Latinx students as they enter into and navigate HWIs in the current sociopolitical atmosphere. By connecting Latinx students to cultural centers early in their first year of college and understanding the critical role these centers play in validating Latinx student culture and leadership potential, higher education professionals at HWIs will be better prepared to promote and support Latinx student success.

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A Review of Strategies for Enhancing College
Freshmen Success and Retention:
Lessons in Grit, Mindset, and Resilience

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This article examines the factors that contribute to retention of first year freshmen at colleges and universities, given that 40% of freshmen do not persist beyond the first year (National Student Resource Clearing House, 2015). Using the lens of grit, mindset, and resilience, the article presents strategies to improve retention by helping students increase task perseverance (grit), build confidence in themselves as learners (mindset), overcome adversity (resilience), foster a sense of belonging, and develop action plans for the future. It takes more than a village to increase freshmen retention rates; it takes an entire campus community- successful students, faculty, staff and support personnel.

Keywords: Grit, Fixed Mindset, Growth Mindset, Resilience, Freshmen Year Initiatives

Introduction

Being admitted as first time freshmen to college is one of the significant milestones of life, a time when students celebrate their achievement and success and dream about where their futures will take them. Along with this elation, there are often underlying feelings of anxiety that reflect concerns about one's ability to do well in college and measure up academically, especially for first generation college students from disadvantaged backgrounds (Campbell, Bierman, & Molennar, 2016; Zajacova, Lynch, & Espenshade, 2005). For many of these incoming freshmen, this anxiety is not frivolous, but well-founded and well-documented (National Assessment of Educational Performance [NAEP], 2015). According to NAEP (2015), only 37% of 12th grade students were proficient in reading and only 25% were proficient in math, with minority students performing well below their white counterparts. More recent data on national ACT performance of high school students in the US showed that "underserved learners (low-income, minority, and/or first-generation college students) continue to struggle in terms of their achievement levels and readiness for college. Less than a fourth of graduates who qualify as underserved met or surpassed three or four of the ACT College Readiness Benchmarks" (National ACT, 2017, p.2). The achievement gap, despite considerable efforts to address performance disparities in urban districts across the country, still looms large.

According to the National Center for Educational Statistics (2016), given the low level of academic proficiency in essential skills needed for college success, it is no wonder that incoming college freshmen must often take non-credit bearing developmental courses in reading and math, before they can advance to the required general education / liberal arts curriculum

(Chen, 2016). As a result of this, the message that unwittingly gets sent is that these students are not capable enough to succeed in college. Regrettably, it is the direct opposite of the message colleges and universities want to send. The message colleges want to send is that if you believe in yourself, believe you belong in college, and take advantage of the opportunities available on campus, you will be able to succeed (Adams Auten, 2018). Recognizing this, Cyrus, Langan, and Ribbe (2016) report that programming for transition into college has become increasingly important as evidence demonstrates that college success hinges on student experiences during the first year. According to the National Student Resource Clearinghouse Center (2015), the rate of retention of first year freshmen across the country is 60.6%. In light of this report, it is important to ask what factors differentiate the 60.6% of freshmen being retained from the 39.4% of those leaving college? For those students who drop out of college after the first year, their withdrawal leaves them with loans for the first year that will be daunting for them to pay without the opportunity for a higher paying job that would have been possible after earning a college degree.

When one considers the amount of resources and professional time that colleges and universities devote to student recruitment, the loss of 39.4% of the freshmen class in a given year is not compatible with an institution's financial health. What strategies can colleges and universities adopt that will facilitate improved rates of freshmen retention? How can theories of grit, mindset, and resilience guide freshmen support programs to enhance retention? What instructional changes can faculty make that would lead to enhanced student achievement and positively impact how students perceive themselves as learners?

Review of Grit, Mindset, and Resilience

Grit. Grit is a quality that refers to a student's persistence in completing tasks and staying the course in the face of adversity (Stolz, 2015). Adversity here can include a constellation of factors like the difficulty level of the academic task, the embarrassment a student may feel when needing to ask for help from a professor or other academic support resources on campus, the sense of ego distress that includes feelings of inadequacy and not belonging, and/or the defensive posture students sometimes adopt to prevent others from knowing just how poorly they are performing. Duckworth, Peterson, Matthews, and Kelly (2007) call persistence of effort in the face of challenge "grit." Bowman, Hill, Denson, and Bronkema (2015) conceptualized grit as a combination of perseverance of effort and sustained interest over time and set out to examine these variables separately and in combination. Their research found that persistence contributed significantly to academic success, and forming strong interpersonal relationships with faculty and fellow students. Hence persistence of effort emerged in this research as a critical variable for success.

In light of this finding, how can college and university faculty foster the development of grit? Students who are able to sustain their effort and ultimately reach their targeted goals, in the face of adversity and increasing difficulty levels, are gritty (Duckworth et al., 2007). Helping students become gritty involves creating opportunities for them to experience themselves as successful, to build confidence in themselves, to become familiar with resources that are available to help them, to interact with faculty on a person-to-person basis, and to build relationships with other students to combat feelings of isolation and low self-expectations (Polirstok, 2017). In a recent meta-analysis of the grit literature, Crede, Tynan, and Harms (2017) found that while grit was somewhat correlated with performance and retention, it had the strongest relationship with conscientiousness. Similar findings were noted by Wolters and Hussain (2015), who found that "one aspect of grit, perseverance of effort, was a consistent and adaptive predictor for all indicators of self-regulated learning (SRL) including value, self-efficacy, cognitive, metacognitive, motivational, time and study environment management strategies, and procrastination" (p. 293). Persistence and sustained effort over time are critical variables for academic success.

Mindset and resilience. Carol Dweck (2007) sees student success and retention as a function of mindset. Students who are willing to take on new challenges academically have a "growth mindset," while students who view their own ability as limited have a "fixed mindset." In the face of academic challenges, Dweck (1996) believes that those who persevere embody an implicit theory about themselves as learners that will eventually enable them to master the new material. This sense of self-efficacy enables students to keep working toward success, even if it means they need to seek out help from a professor, a tutor, or a study group. Students' implicit theories about themselves fuel their beliefs that they will be able to learn what is necessary to be successful as long as they remain engaged and can identify necessary resources. Having a "growth mindset" is a direct outgrowth of one's prior positive experiences as a learner; and,

while cognitive ability and schema have a role to play, how one feels about oneself as a learner drives the process of engagement.

In contrast, students with "fixed mindsets" often operate from a defensive posture, working hard to conceal what they don't know for fear of having others judge them and their abilities. The fixed mindset is best viewed as an implicit theory about oneself that is defensive, not wanting anyone to see into one's real academic abilities or lack thereof, and a belief that one is already as smart as one needs to be (Polirstok, 2017). Often "fixed mindsets" have been developed as early on as middle school, a vestige of adolescent development where students simply want to blend in with others and preserve and protect their egos (and their reputations) from criticism. These students often learn parts of skills or concepts and fall short of full understanding because they believe what they have learned is "good enough." Mawer (2014) notes that students with fixed mindsets may try to avoid academic tasks "because if they don't try to do something they feel is beyond them, they can kid themselves that they have not failed" (p. 50).

Yeager and Dweck (2012) maintain that mindsets can be changed, and, in doing so, pave the way for students to become more resilient. How a student perceives the adversity he or she encounters, as opposed to the actual adversity needed to be overcome, may be a significant factor that contributes to the limited academic performance many adolescents and young adults demonstrate. The key intervention here is to have students with fixed mindsets explore their 'perception of adversity' versus the 'actual adversity' and identify the actions they can take to be successful. Student perceptions of the adversity they face may be over exaggerated and inaccurate, making any attempt at addressing the adversity a failure. In turn, this reinforces an already existing negative sense of self. If in fact students can be successful in challenging their perceptions of adversity and overcoming them, not only does that build resilience – it helps to challenge the implicit "fixed" theory of themselves as learners.

Research conducted by Han, Farruggia, and Moss (2017) examined the effects of academic mindsets on college students' achievement and retention. College success was defined by GPA, number of credits earned, and retention from first year to second year. The population was assessed and grouped via cluster analyses, yielding four groups: all high (demonstrating high self-efficacy, high sense of belonging, and high academic motivation), belonging-oriented, all low (demonstrating low self-efficacy, low sense of belonging, and low academic motivation), and self-efficacy-oriented. In the all high grouping and the self-efficacy grouping, students were able to perform better and earn more credits than did their comparison peers in the other groups. What this finding suggests is that academic performance in the first year of college may be directly related to students' beliefs or mindsets concerning the likelihood of their academic success. Given this finding, a directed follow-up action would be to identify all students falling in the "all low" group and providing them with a structured intervention (Luzzo, Hasper, Albert, Biddy, & Martinelli, 1999). Addressing the needs of the "all low group" with a structured intervention would help to support academic achievement and retention. Advisors can play a critical role here in a less formal way if they understand how to talk with students who have low self-efficacy.

Han et al. (2017) went beyond examining student mindsets about academic success; they also examined retention from the first year to the second. Not surprisingly the 'all high group' had the best retention rates of the four groups studied. However, the next best rate was demonstrated by the 'belonging-oriented-group.' This is an interesting finding in that other research has also demonstrated the link between feelings of belonging and college success, though these findings have been inconsistent (Kember, Lee, & Li, 2001; Kim & Lundberg, 2016; Thomas & Galambos, 2004; Walton & Cohen, 2007). What this finding about belonging suggests is that freshmen programming, including summer and bridge programing, needs to help newly entering students forge connections with student organizations and clubs on campus to strengthen their sense of belonging. This sense of belonging may also be strengthened by racial/ethnic and gender identity affiliations. One of the limitations of the Han study is that the clustering of students into the four categories may well produce different findings if race, ethnicity, and gender identity were factored into their analyses.

Strategies for Enhancing Grit, Mindset, and Resilience

Examining newly admitted freshmen from the perspectives of grit, mindset, and resilience can offer clues to developing meaningful programming approaches on college campuses. Among the approaches that will be highlighted are: Direct Instruction in Grit and Mindset, Digital Learning Stories, Community Building, Mastery Learning and Repeated Measures, and Personal Action Plans.

Direct instruction in grit and mindset. Dr. Lee Ann Nutt serves as the President of Lone Star College, a Community College in Tomball, Texas that serves 9,000 students each semester. President Nutt (2018) makes a strong argument for grit to be viewed not from a quantitative perspective, noting how much grit a student might have, but rather from a qualitative perspective that goes beyond a "deficit narrative" (p. 1). "Whereas grit is about quantity, GRIT is about quality: (1) good vs. bad; (2) effective vs. ineffective; and (3) strong vs. weak." (p. 4). Lone Star College has embraced a more holistic vision of GRIT, developed by Dr. Paul G. Stolz (2015) in his book "GRIT-The New Science of What It Takes to Persevere, Flourish and Succeed", and has engaged with Dr. Stolz in studying the impact of GRIT on its students. Dr. Stoltz defines GRIT in the following way: G is for Growth Mindset (an openness to consider new ideas and insights), R is for Resilience (an ability to respond to adversity), I is for Instinct (an ability to identify and take steps toward meeting identified goals) and T is for Tenacity (an ability to exert extra effort over time). In his earlier work in 1997, Dr. Stoltz coined a term called the "Adversity Quotient." This term refers to the ability of individuals to persist and succeed in the face of adversity and suggests that factors for success involved not only IQ (intelligence quotient) and EQ (emotional quotient), but also AQ (adversity quotient).

At Lone Star College, students in the experimental group watched a video by Dr. Stolz that explained GRIT (referred to by Dr. Stolz as the GROCK phase), asked students to use a GRIT assessment at the beginning and end of the term (referred to by Dr. Stolz as the GRIT GAUGE), and provided direct instruction in GRIT (referred to by Dr. Stolz as the GROW phase where GRIT tools were applied for permanent change). Beyond the video viewing, each professor

in the GRIT group modified one assignment during the semester that reflected the GRIT training the students received for reinforcement. A control group of students and faculty received no video and no direct instruction in GRIT, but was asked to do the pre and post-GRIT assessment as a basis for comparison.

Lone Star College partnered with Pearson to answer key research questions including the impact of GRIT scores on course completion and GPA (Pearson Case Study, 2015). The results showed that GRIT training had a positive impact on overall performance and course and credit completion. According to President Nutt, "Our research also shows that GRIT can be grown during a standard academic semester and that classes taught 'With GRIT' have a higher completion rate" (p. 4). Persistence from Fall 2015 to Spring 2016 showed a 4.2 percent improvement over a similar comparison for the previous Fall 2014 to Spring 2015 academic year (Pearson, n.d). Students who participated in a GRIT course had a 3% higher success rate than the students who took courses that did not include GRIT instruction. Finally, GRIT scores were significantly associated with student cumulative credits earned.

The ongoing work in GRIT at Lone Star College in collaboration with Dr. Stolz can offer colleges and universities a model for how to embed study in GRIT in academic classrooms that can pay dividends in terms of student success and student retention. Given the intense focus on the four and six year graduation rates of institutions across the country, embedding GRIT in key courses correlated with college success may be a process worth pursuing and can be packaged with digital learning stories as a powerful treatment.

Another direct instruction approach to grit and mindset is offered by Marianne Adams Auten, who teaches at Paradise Valley Community College in Phoenix Arizona. Dr. Adams Auten (2018) maintains that students are interested in learning about grit and mindset as concepts that underlie academic success. She chooses to teach these concepts directly, assigning readings for students on these topics, discussing them globally in class, asking students to assess their own levels of grit and mindset, and then having them explore how they can strengthen these factors for themselves as learners. This affords a great opportunity to identify resources on the campus that can help students to increase their grit and strengthen their embrace of a growth mindset. It also reinforces the notion that one's ability to learn is not static and can change based on attitude, self-perception, and opportunity.

Digital learning stories. Digital Learning Stories have been successfully used with incoming freshmen about to enroll in rigorous science courses at the University of Texas at Austin (Sunday New York Times Magazine, "Who Gets to Graduate?" May 18, 2014, by P. Tough). The new freshmen were asked to listen to stories of academic success recorded by junior and senior minority students who came to college and to science courses unsure of how they would do academically and had little confidence in their ability to succeed. Like the entering freshmen, a good percentage of them came from low income households and were the first in their families to go to college. Looking back at having been successful and now moving toward a degree, these upper classmen were asked to record short videos about the strategies that they used to succeed in the rigorous science curriculum. "The stories that were most effective either had a "belonging" message or a "mindset" message. In the "belonging" message, students talked about their fears at first

first of not fitting in, of not being smart enough to succeed, and of the things that made them feel like they belonged. In the stories that focused on "mindset," students read an article that focused on how the brain was changeable and through practice could foster increased connections, challenging the conscious or unconscious belief that intelligence is static (Polirstok, 2017, p. 3).

The findings at UT Austin showed that these short videos worked. Disadvantaged freshmen who viewed the digital learning stories dropped out less frequently than did students in the comparison group. The digital learning stories helped to strengthen target freshmen's core beliefs about themselves as learners, helped to shift mindsets from fixed to growth, and reinforced students' sense of belonging.

Community building. Most colleges and universities recognize the importance of building community among entering freshmen each year. Typically, the Office of Student Life plans a freshman orientation program that helps new students meet each other, provides some assistance with planning courses, helps with developing schedules and registration, and introduces students to various clubs and activities on campus. However, transitioning from high school to college is a major shift for freshmen psychologically, as they leave home to live at school and will be expected to meet all academic demands independently without having a parent or a teacher reminding them of what has to get accomplished. For some entering freshmen, this will be the first time that they have lived away from their families. For other freshmen who continue to live at home and commute to a campus, the transition may be a bit more confusing; while they are expected to function independently at college, living at home may challenge their emerging independence if there are expectations around curfew, daily living needs, room cleanliness, and study times. For these students, balancing their independent performance on campus with their home expectations is an ongoing challenge.

In looking at all of these changes, it becomes clear that a limited freshman orientation will not be sufficient to prepare students for success, either academically or socially. Given that the stakes for persistence and retention are so critical, colleges and universities need to invest resources in programs that will build community during the freshman year. These programs are often called Freshmen or First Year Initiatives (FYI). One such award winning Freshmen Year Initiative Project has served students at Lehman College, CUNY over the past 25 years. Its chief goal is to improve the retention of first-time freshmen. Recognizing that creating a sense of belonging is an important component of retention, academic support needs to be made available in a variety of ways connected through social programs and activities on campus.

At the core of the FYI program is the creation of Learning Communities, where clusters of courses are taken by the same group of students. The common clustering of courses enables faculty to develop a rich curriculum that integrates and reinforces key concepts and skills, with each block choosing a unique thematic approach that students can select based on their area of interest and possible future major. Among the blocks are Nursing, Pre-Med/Health, STEM, Business Administration, Accounting, and Education.

Within each learning community is a 3-credit course entitled "Freshman Seminar." This course helps ease the transition from high school to college. Students learn about the structure of the curriculum (required courses vs. elective courses and the value of a liberal arts curriculum); strengthen critical thinking, problem solving, and research skills; enhance necessary academic skills including reading, note-taking, test taking, and time management; and identify college resources and opportunities for community engagement. The FYI program also offers students support services that may be needed including: tutoring, advisement, and counseling.

Beyond creating software that would allow the college to better track student progress and advisement, participating faculty received training in how to support students academically, how to link elements of their coursework to the campus community, and how to create action research projects that could enhance their teaching and impact student achievement. The message of the FYI program is clear; increasing student retention involves the whole college: student life personnel, academic faculty, counselors, tutorial support services, and upper-class students and alumni who could tell their stories of success.

Another *First Year Experience Program (FYE)* was implemented more recently at the University of Bridgeport (Connolly, Flynn, Jemmott, & Oestreicher, 2017). This program added a credit bearing course for all new freshmen who were considered "at-risk." Bridgeport's definition of at-risk included students with a high school GPA of 2.8 or less on a 4-point scale and a combined SAT score of 800 or lower. The FYE class addressed issues of transitioning from high school, developing relationships with other students and their professors, assigned peer advisors, and emphasized learning strategies and time management. Further, the program required students to participate in a minimum of three campus events along with peers from their FYE class. Clearly at its core, this program understands the importance of social engagement to counter feelings of isolation and loneliness and in doing so, fosters a sense of community and belonging.

Research reported by Johnson, Flynn, and Monroe (2016) on a First Year Plan (FYP) for at-risk students at a large metropolitan college in urban New York City, focused on students living in a residence hall. The residence hall staff members as well as other staff members at the college were charged with providing support for students in loco parentis (as though they were parents) to foster a sense of emotional safety in the residence hall. Each member of the staff team had specific responsibilities: academic advisement, identification of specific student needs and planning for supports, and assigning peer tutors as needed. The approach here is an integrated one, which recognizes that students need an array of supports that address their emotional, academic, and social needs. The preliminary results of this study indicate that participating freshmen experienced an increase in GPA as a result of the supports provided, which contributed to increased retention.

Most colleges and universities have programs that address a

wide range of at-risk freshman needs, nevertheless the fact that some students succeed while others do not, causes us to continually question the effectiveness of such programming. Two additional factors may be tied to this continual questioning and both certainly speak to the unique qualities of individual students, faculty, and staff. One factor is the role of the "significant other." Are students actually able to bond with a faculty member, a staff member, or an upper-class advisor or tutor? Forming a relationship with a significant other helps the student to feel safe, valued, and often provides a role model for a student to emulate. These kinds of relationships often develop incidentally, without a structure or a plan. What this suggests is that when planning an array of experiences for new freshmen, there needs to be more systematic efforts to encourage such relationships. Faculty and staff need to become more aware of the factors that contribute to the formation of such relationships and how situations can be structured to increase opportunities for bonding. More experienced and senior students also need to understand what they can do to establish relationships with freshmen that would be impactful. So the strategy here would be to move from incidental engagement to more deliberate, purposeful, and planned interactions with at-risk freshmen.

Beyond this focus on the "significant other," another activity that can be a contributing factor to student success and retention involves helping students develop action plans for their futures. Engaging students in understanding the steps and possible challenges or adversities that they will need to address along the way to graduation can help eliminate the surprises that might overwhelm and lead to withdrawal from college.

Mastery learning and repeated measures. While we have already discussed first year student support programs to enhance retention and strategies to build grit, mindset, and resilience, we have not discussed the direct impact of faculty instruction on student success. Regardless of the number of support programs and support services, student success is closely aligned with the instructional program and what faculty do day-in and day-out in the classroom to foster it (Tinto, 2006). Nothing works like success; when students feel successful, they are more willing to take on challenges. There are many strategies from mastery learning (Meichenbaum & Biemiller, 1998) that can help faculty create classrooms where students feel successful and in charge of their own learning. One such strategy involves providing students with multiple opportunities to retake quizzes or resubmit assignments in order to regain lost points. By engaging in such activities, students become more responsible for their performance and feel more engaged when they can improve their scores. Improving their scores in turn can enhance mindset and can help students become more "gritty."

Typically, when students do poorly on tests and assignments, they experience the resulting failure as punishing, and may immediately disengage from the class because they recognize early on that they will not be able to achieve an acceptable grade for the semester. Often disengaged students stop attending and, as a consequence, wind up with a failing grade for the semester, which negatively impacts their GPA. By providing multiple opportunities to improve performance, students learn about "fix up" strategies and this empowers them to do better. The

focus then becomes learning whatever it is they were not able to demonstrate on the initial test or assignment. For example, one procedure to facilitate learning on a topic that was previously missed on a test or an assignment is to identify the item missed and to find the correct information in the assigned text, another text, or on the Internet. The student must write the corrected information and show where he or she found it. Then the student is asked to consider why he or she missed this item – Did he or she not understand it when it was initially taught in class? Did he or she not study? Did the student confuse this with something else? Was the student out sick when the topic was taught? Asking the student to think metacognitively about why he or she missed an item on a test or an assignment serves to increase the student's ownership of whatever the problem was. Finally, the student needs to write an original question on this item or assignment that could be used in the future as another assessment, pretending that he or she is the instructor. To gain back lost points, a student would have to do these three tasks for each question missed on an assignment.

When students realize that they can earn back lost points, their attitudes and emotions about evaluation begin to change for the better. Somewhere along the line, students may realize that this process is time consuming and it would be preferable to perform at a higher level from the beginning, encouraging them to study more effectively and work harder to achieve higher scores the first time the evaluation is administered.

Providing multiple opportunities for students to be successful on various assessments and quizzes links research on grit and mindset to classroom practice. According to Coley and French (2014), "these performance accomplishments help to minimize individuals' anxieties around learning and the self-efficacy that they help develop will transfer to other scenarios and enable the individual to counter anxiety from past failures (Bandura, 1977)" (p. 1026). By engaging repeatedly in opportunities to improve their performance, students demonstrate grit, perseverance, and tenacity. Once performance reaches the criterion, students' beliefs in their own self-efficacy are strengthened and a shift in mindset from fixed to growth can take root over time. While ownership of learning and improvement cannot address whatever gaps may exist in content knowledge, self-efficacy and persistence can provide the impetus for improvement (Coley & French, 2014).

Another instructional strategy that faculty can employ for student success involves frequent and spaced review of material already taught. Material that has already been taught needs to appear every so often as a review at the beginning of a class, as a question on a homework assignment, and/or as a bonus question on a test. Using spaced review is a strategy that helps the brain code information for long term memory, and this will be helpful to students at the final exam time.

While both of these strategies, spaced review and multiple opportunities for success, can be very effective in fostering grit, all too often college professors do not see either of these techniques as part of their instructional responsibilities. The assumption is that students should have learned long ago to study more effectively, to read assigned material with a focus on detail, and to submit papers that are thoughtful and well written. In working with students as they transition from high school, faculty need to recognize that they have a responsibility to help students to bridge the "skills

divide" and to learn how to be successful in a college classroom. Seat time alone will not improve performance; good instruction is necessary and providing multiple opportunities for students to be successful is every professor's responsibility. Morales (2014) provides suggestions for faculty to facilitate the resilience and retention of students, and highlights how essential these strategies are given that most faculty have never received formal training in teaching effectiveness. Among Morales' instructional recommendations are "constantly build students' self-efficacy; help students realistically appraise their own strengths and weaknesses; encourage help-seeking tendencies; and provide clear linkages between academic success and future economic security" (p. 95).

Once students can meet individual course expectations and retention criteria, the next challenge is for them to recognize what they will need to do to graduate at some point in the future. The task needs to shift to the student developing a personal action plan that will support persistence beyond the first year of college and help the student envision a path to graduation.

Personal action plans. For each student, developing a personal action plan begins with the question: "What do you want to do when you graduate?" According to Adams Auten (2018), "this is as simple as asking students what is important to them and what kind of future they want to create, then offering our expertise to help them craft a realistic, step-by-step plan to get there" (p. 3). The creation of such a plan helps to build a bridge for students from where they are to where they want to be. This notion of pathways and how to overcome obstacles is discussed in Marilee Adam's (2013) "Choice Map," one of many mindset tools that she suggests can help students to succeed. By engaging in this process to identify paths and barriers, both verbally and graphically, it helps to make the future real, accessible, and connected to the immediate moment. It promotes a discussion of what challenges lay ahead and how specific individuals, programs, or resources at the college or university can help students when these given challenges arise. Personal Action Plans can be empowering to students and can "go a long way to increase the grit, tenacity, and perseverance required to succeed" (Adams Auten, 2018, p. 3). Such plans can be addressed when meeting with an advisor, to not only identify courses needed for graduation, but more importantly to discuss the skills students will need to demonstrate to advance to the degree.

Discussion

The U.S. Department of Education Office of Educational Technology reminds us "there is still much that needs to be done if grit, tenacity and perseverance are to become a pervasive priority in education. There are no quick fixes" (Alliance for Community College Excellence in Practice, 2018, p. 1). This article has provided a broad review of key concepts and strategies related to increasing retention of freshmen students beginning their college careers. Existing data show that freshmen from low socioeconomic backgrounds, whose academic achievement in math and reading fall in the bottom 30% of their high school class, and who are obligated to take remedial courses as freshmen, are at significant risk for dropping out of college. From an institutional point of view, the experiences provided to these at-risk students by colleges

and universities need to address the following factors: grit, mindset, resilience, belonging, and academic competence.

Any program that is designed to support at-risk freshmen should target each of these factors, not in an isolated or single fashion, but rather collectively and holistically in a multi-pronged approach. For example, academic tutoring is only one factor and relying on this one factor alone will not be sufficient to keep at-risk freshmen from dropping out. Developing grit, growth mindsets, resilience, and feelings of belonging have to be in place for tutoring and remedial coursework to be impactful. Similarly, summer bridge programs for freshmen and freshmen year programming will have limited effectiveness if not part of a broader, more integrated approach. Providing strategies that address grit, mindset, resilience, belonging, and academic competence as discrete and separate efforts can produce minimally positive effects. However, if these strategies are designed holistically as an integrated, multi-pronged, broad-based intervention, then the outcomes can be far more effective, with these elements having a multiplicative impact as opposed to an additive one.

Research efforts to design integrated intervention programs for at-risk freshmen and to assess their overall effectiveness need to receive significant support from college and university administrations. These efforts should not rely overwhelmingly on implementation by admissions, recruitment, and student life personnel. Rather faculty need to be engaged directly in this effort and given the support necessary to conduct research that can be published and considered for faculty tenure and promotion. The research reported on in this review from Lonestar College shows the value of implementing GRIT research systematically on the campus. Having faculty committed to research efforts addressing retention of at-risk students helps faculty to be more engaged in the literature of grit, mindset, and resilience, to identify classroom instructional practices that are in keeping with this literature, and encourages a sense of teamwork across the campus. Faculty need to investigate the strategies institutions across the country are using to address retention of at-risk freshmen and consider the extent to which these strategies might be employed at their institution. This can foster cross-campus collaboration, an excellent tool to increase faculty engagement and dialogue on a broader scale (both state and nationally), while at the same time encouraging faculty on their home campuses to talk with each other across disciplines.

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