GOAL ORIENTATION, PERCEIVED ENABLER/BARRIERS, AND SELF-EFFICACY IN HEALTHCARE ADMINISTRATION INSTRUCTION

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ABSTRACT

The principal aim of this paper is to enhance curricula and instruction in business and healthcare administration. In pursuance of this aim the results of a study of relationships among goal orientations, self-efficacy, perceived instructional enablers, and course satisfaction among students enrolled in a university business school healthcare administration program are reported. Findings are based upon a total of 353 surveys completed both by graduate and undergraduate students. A central conclusion is the importance of understanding the interplay of students' goal orientations, learning enablers or barriers, course assessment, and self-efficacy in educating healthcare leaders. Implications are discussed for instructional improvement and future research.

Keywords: goal orientation, self-efficacy, business education, healthcare administration, course enablers/barriers, curriculum development, life-long learning, student motivation

INTRODUCTION

There have been extensive and on-going efforts in business schools and, in particular, healthcare administration (hereafter "HCA") education to develop competencies for improved leadership effectiveness (NACE, 2019; AUPHA, 2017). Such efforts have identified *content areas* expected to be covered in university programs to promote such effectiveness (Radwan, Ghavifekr, & Razak, 2020). But at present little is known about ensuring that business students become adaptable, life-long learners in an ever-changing, competency-based world. In particular, there has been only limited research on what best motivates the learning of leadership competencies, what restricts such learning, and what background characteristics are critical to curricula development and, especially, to more on-line, individualized instruction. These are significant omissions in understanding since healthcare leadership increasingly will necessitate continual competency reassessment and alteration in continually-evolving complex environments (Fick, Dishman, Adler, & Williams, 2018; Murdock, Delgado, Gammon, Raole, & Neha, 2019).

This study seeks to at least partially correct these omissions and limitations with the principal aim of enhancing curricula and instruction. As business school instructors, we believe that the pressures and frustrations student learners typically face are quite likely related to the interplay of their goal orientations, to the feelings of self-effectiveness they bring to an

instructional setting, to their prior work experiences, and to the barriers or the enablers they perceive in HCA coursework (Payne, Youngcourt, & Beaubien, 2007). The professional literature on organizational training emphasizes that learning motivation and goal orientations have a direct effect on educational outcomes (Klein, Noe, & Wang, 2006). Yet, studies in HCA course contexts are comparatively rare posing a specific limitation to leadership development in healthcare (Klein et al., 2006; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Weiss, 1990). In preparing our students to master the complex challenges they will face as healthcare professionals, we may, therefore, be missing an opportunity by ignoring their learning motivations and goal orientations in designing our curricula.

In order to better prepare students, the study reported here specifically examined relationships among learning goal orientations, perceived coursework barriers and enablers, instructional level (graduate versus undergraduate) and satisfaction with students' immediate instructional experiences while taking into account the background characteristics of prior work and leadership experiences; generalized feelings of self-efficacy; and gender differences that students brought to the classroom (on the importance of these relationships and characteristics see Klein et al., 2006; Colquitt, LePine, & Noe, 2000). We hope to initiate a robust effort by researchers to gain even more insight into the effects of GO in HCA program instruction.

LITERATURE REVIEW

Goal Orientation

Previous investigations have shown the importance of specific goal orientations (hereafter "GO") in learning, especially for the design of effective classroom interventions. These investigations have generally found that such orientations fall into two major categories: (a) mastery goals, in which individuals seek to increase their competence, and (b) performance goals, in which individuals seek to gain favorable judgments of their competence. Individuals with mastery goal orientations view challenges as opportunities and persist in the face of difficulties encountered because they view their abilities as malleable. They seek competence. Moreover, mastery learners are less likely to view class features as barriers than performance learners. Performance GO individuals, on the other hand, are more concerned with how they are perceived by others and tend to expend more energy in impression management and grade-seeking (Dweck & Elliott, 1983; Nicholls & Dweck, 1979).

Several investigations have found that the mastery goal orientation emphasizes competence and knowledge learning (Elliot & McGregor, 2001; Hansen, 2020). Individuals highly orientated to mastery may seek achievement through experiential learning (Ames, 1992; Meyer, Turner, & Spencer, 1997). Additionally, such individuals have been shown to have higher self-efficacy and to not employ avoidance strategies in learning (Hsieh, Sullivan, & Guerra, 2007). Mastery has been found to be strongly associated with self-evaluation and to be a likely facilitator of future life-long learning (Cellar et al., 2011; Belenky & Nokes-Malach, 2012).

In comparison, performance orientation has been shown to emphasize the demonstration of competence. Individuals with high levels of this orientation have been found to desire to demonstrate their competence and to avoid appearing incompetent. Some researchers have

indicated that a performance orientation has a strong, positive relationship with learning (Payne et al., 2007), whereas others identified it as detrimental to achievement, skill acquisition, and test anxiety (Chen, Gully, Whiteman, & Kilcullen, 2000; Fisher & Ford, 1998; Linnenbrink, 2005; Yeo & Neal, 2004).

A performance goal orientation was originally considered to be maladaptive when compared with a mastery orientation (Ames & Archer, 1988; Dweck & Leggett, 1988; Elliot, 2005). However, evidence was also found to suggest that performance goals are beneficial in some situations (Harackiewicz, Barron, & Elliot, 1998; Pintrich & Garcia, 1991). This evidence ultimately led researchers and theorists to suggest replacing the simple mastery-performance comparison with a 2 X 2 framework in which the performance and mastery goals are both dichotomized into approach and avoidance dimensions (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001). This dichotomization resulted in a GO framework consisting of mastery-approach (we call this M) which is defined as having the goal of learning and mastering the task relative to self-set standards (King & Mendoza, 2020); mastery-avoidance (MA) which refers to having the goal of striving to avoid a loss or perception of loss of mastery (Madjar, Kaplan, & Weinstock, 2011); performance-approach (P) which is defined as having the goal of outperforming their classmates (King & Mendoza, 2020); and performance-avoidance (PA) which refers to having the goal of avoiding demonstration or perception of being incompetence (Elliot & Murayama, 2008).

Avoidance orientations (PA and MA) refer to avoiding a demonstration of incompetence (PA) or not appearing to be avoiding competence (MA) (Elliot & McGregor, 2001; Pajares, Britner, & Valiante, 2000). Individuals with an avoidance orientation have been shown to possess strong preferences for avoid completing a complex task or a task needing considerable effort (Brophy, 2010, p.428). Previous studies also have found that avoidance is negatively associated with motivation and academic training outcomes (Darnon, Butera, Mugny, Quiamzade, & Hulleman, 2009; Middleton & Midgley, 1997).

Individuals with an MA goal orientation focus mainly on avoiding a failure to develop competence, avoiding misunderstanding, and avoiding an inability to learn or master a task (Elliot & Harackiewicz, 1996; Payne et al., 2007; Vandewalle, 1997). They likely do not focus on life-long learning. Van Yperen (2003) states that an MA orientation is deleterious for improving performance, compared to the other three orientations (Van Yperen, Elliot, & Anseel, 2009). Interestingly, Senko & Freund (2015) found that older adults associated more with MA. On the other hand, individuals with a high PA goal orientation are more likely to avoid mistakes and engage in defensive behaviors, such as seeking less performance-related feedback and demonstrating lower levels of learning and academic satisfaction (Button, Mathieu, & Zajac, 1996; Porath & Bateman, 2006; Shim & Ryan, 2005; Soyer & Kirikkanat, 2019). They also may be less likely to focus on continuous learning.

Still other researchers have introduced an important caution about MA, PA and the other orientations. According to the findings of these researchers, a goal orientation is not an inherent trait and one person is unlikely to have just one goal orientation. Rather, the development of a goal orientation in learning appears to be situational and dependent on different instructional

circumstances (Bong, 2001; Harackiewicz, Barron, Tauer, & Elliot, 2002; Wolters, 2004). This issue alone can have a major impact on the design of instruction.

But how prevalent are each of these orientations? And. In what situations? To date there has been little research on the prevalence of each goal orientation. But Dekker and associates (2013) produced evidence indicating that the mastery approach (M) was the most common goal orientation among girls and boys in the age 10-19 category. Conversely, the performance approach orientation was generally found least prevalent with the exception of boys in the 14 to 19 categories. Additionally, Perrot and others (2001) reported a stronger preference for mastery over performance among health professions' students in medicine, nursing, and pharmacy. But the goal orientations of HCA students were not included in the work of Perrot and associates leaving unknown the orientation prevalence among this important group of learners.

In summary, students take on different orientations to learning and there are numerous positive and negative outcomes from doing so. Little is known about the proportion of goal orientations in healthcare students. Our hypotheses are shown below in italics:

HCA students will prefer an M orientation preference more than MA, P, or PA.
M and P orientations will perceive more items as barriers than PA and MA oriented students.

Self-Efficacy

Self-efficacy is the self-belief about one's capability in performing tasks or learning (Bandura, 1982). Self-efficacy has been shown to have a significant effect on an individual's choice and effort, as well as task outcome (Bandura, Adams, & Beyer, 1977; Bandura Barbaranelli, Caprara, & Pastorelli, 1996; Linnenbrink & Pintrich, 2003; Soyer & Kirikkanat, 2019; Zimmerman, Bandura, & Martinez-Pons, 1992). Some studies have failed to verify the positive influence of self-efficacy (see, for example, Maddux, Norton, & Stoltenberg, 1986) as a contributor to motivation. But other researchers, notably Schunk (1991), argued its importance to learning in academic settings.

Still other research supports relationships between self-efficacy and goal orientation in learning and in training strategies (Janke & Dickhäuser, 2019; Liem, Lau, & Nie, 2008; Schunk & Meece, 2012). Moreover, of particular importance to the present study, others have reached the conclusion that a mastery orientation is positively and strongly associated with self-efficacy beliefs (Anderman & Young, 1994; Middleton & Midgley, 1997; Sakiz, 2011; Zhang, Cao, Shen, & Qian, 2019; Feyzioğlu, 2019).

On the other hand, differing conclusions have been reached about the relationship between the performance approach orientation and academic self-efficacy beliefs (compare and contrast the findings of Elliot & Church, 1997; Fan, Meng, Billings, Litchfield, & Kaplan, 2008; Linnenbrink, 2005; Middleton & Midgley, 1997 with those of Anderman & Young, 1994; Bell & Kozlowski, 2002). Similarly, there are inconsistent results concerning the relationship between academic performance avoidance and self-efficacy (contrast the findings of Dierdorff, Surface & Brown, 2010 with those of Hsieh et al., 2007, and Suprayogi, Ratriana, & Wulandari, 2019).

In clinical education, self-efficacy has been shown to provide an impetus to students for learning new subjects (Harper, Eales-Reynolds, & Markham, 2013). High self-efficacy has been found positively linked to health promotion skills in relevant educational practices (Ramezani,

Sharifirad, Rajati, Rajati, & Mohebi, 2019); high expectations for success and high value for science during students' bioscience course learning (Andrew, McVicar, Zanganeh, & Henderson, 2015), and better placement exam scores (Mavis, 2001). In addition, self-efficacy was found to be an influential mediator between social support, perceived barriers, and the level of physical activity in nursing students (Mo, Blake, & Batt, 2011) as well as between transformational leadership and team efficacy among healthcare professionals (Nielsen, Yarker, Randall, & Munir, 2009). Perrot et al. (2001) indicated that students who majored in the health professions should have self-directed life-long learning motivation for keeping pace with the ever-changing environment. As argued by others, healthcare leader education should, therefore, value the importance of students' self-efficacy and its improvement in curricula development (Townsend & Scanlan, 2011; Williams, Beovich, Ross, Wright, & Ilic, 2017).

The literature shows that there are relationships among self-efficacy and the achievement goal orientation and the learning strategy of students. SE seems to be highly related to an M orientation; however, differing conclusions have been reached about these relationships. SE seems to be an important mediator in clinical education. Our hypotheses are:

SE will be positively related to the P and M goal orientations with the strongest relationship found with M.
SE will be negatively related to avoidance orientations.

Perceived Educational Enablers and Barriers

Several studies have shown that one of the important determinants of motivation for learning are perceived enablers and disablers (Chowdhury & Halder, 2019; Klein et al., 2006; Pilgrim, Hornby, & Macfarlane, 2018). Perceived enablers and disablers are environmental events or conditions that facilitate or hamper learning motivation or processes (Lent, Brown, & Hackett, 2000). Learners who perceived external factors more as enablers instead of barriers have been reported as having a higher motivation to learn (Klein et al., 2006; Mathieu, Tannenbaum, & Salas, 1992).

Other researchers have shown that certain perceived barriers, especially physical ones, including classroom context (Celuch, Milewicz, & Saxby, 2020), class structure (Self-brown & Mathews, 2003), information examination (VandeWalle & Cummings, 1997), time (Mathieu et al., 1992), and technology availability (Christensen, Anakwe, & Kessler, 2001; Martins & Kellermanns, 2004; Shubina & Kulakli, 2019), have a slightly negative impact on the motivation for learning. Bambara, Nonnemacher, & Kern (2009) reported the intangible aspects of perceived enablers and barriers, such as school culture, administrative leadership and support were also relevant. Furthermore, we know a teacher can be an enabler/barrier to learning (Shin, Kim, & Hur, 2019). Also, it has been found that test anxiety and perfectionism, which can also be regarded as perceived enablers or barriers, are related to the development of a goal orientation (Elliot & Church, 1997; Yusefzadeh, Amirzadeh, & Nabilou, 2019). Of particular importance, Eum and Rice (2011) reported that students with high test anxiety were more likely to be more perfectionistic and more likely to adopt a performance avoidance orientation.

In other healthcare-related work, Loftin, Newman, Dumas, Gilden, & Bond (2012) concluded that minority students in nursing education faced several barriers, including a lack of

academic advice, mentors, and technical support as well as professional socialization. Additionally, minority nursing students were found as well to have had different special, personal needs (Amaro, Abriam-Yago, & Yoder, 2006; Yoder, 1996). In accordance with Tinto's theories (1988, 1990), Shelton (2003, 2012) found that perceived faculty support is linked to nursing students' retention and persistence in study.

In brief, perceived barriers have been shown to promote insufficient psychological and physical support and, thereby, exacerbate negative impacts on learning. There is some research showing that the perception of conditions as enablers promotes learning. The is little research, but it seems likely that HCA students will perceive many of these same barriers to their education as well as judge some conditions as enablers which promote learning. Finally, it also seems likely that the goal orientations of HCA students and their feelings of self-efficacy will be similarly related to perceived educational barriers. Our hypotheses are:

HCA students will view more items as barriers than enablers.
Perception of barriers/enablers will be different by GO preference.
Students with an avoidance orientation will more likely perceive items as barriers.

Course Satisfaction

A number of researchers have studied goal orientation and course satisfaction (for example, Zimmerman & Kitsantas, 1999). Students have been found to be more satisfied with the academic experience and more proactively engaged in academic activities when they pursued a mastery orientation (Jagacinski & Nicholls, 1984; Pohl, 2020). Some studies have indicated that a performance orientation was positively associated with learners'/trainees' satisfaction (Baena-Extremera, Gómez-López, Granero-Gallegos, & del Mar Ortiz-Camacho, 2015; Medina, 2017) but the satisfaction level was lower than those who pursue mastery orientation (Kim, Lim, & Noh, 2016). Some have argued that a performance orientation was negatively related to academic satisfaction (Alhadabi & Karpinski, 2020).

Students were found more likely to achieve better grades when pursuing mastery alone (Filippello, Buzzai, Costa, Orecchio, & Sorrenti, 2018) or adopting a performance avoidance orientation (Roebken, 2007). Zaitseva, Milsom, & Stewart (2013) found students in their final year of undergraduate had higher course satisfaction as the improvement of skills and knowledge and the shift from mastery orientation to performance orientation occurred.

Several factors, such as collaborations, interactions, and autonomy can positively affect students' satisfaction that impact academic achievement (Abuhassna et al., 2020). Inan, Yukselturk, Kurucay, & Flores (2017) pinpoint that self-regulation played an important role on student satisfaction in the e-learning course. Abdulhay, Ahmadian, Yazdani, & Amerian (2020) observed that performance goals and mastery goal structure had significantly positive correction with self-regulation in a foreign language writing course. Additionally, females' learning satisfaction was more impacted by their computer self-efficacy, instructor characteristics and facilitating conditions (Dang, Zhang, Ravindran, & Osmonbekov, 2016).

The literature on the relationship between goal orientation and course satisfaction is contradictory; however, mastery orientation seems to be related to higher course satisfaction and

performance in the classroom. Furthermore, course structure may be a mediating factor. Our hypotheses are:

The relationship of overall course satisfaction and satisfaction with course structure will differ by GO.
M will be associated with higher satisfaction with one's choice on what to study.

Gender, Degree Level, and Work Experience

The literature on the relationship of GO and gender are very mixed. D'Lima, Winsler, & Kitsantas (2014) found that gender differences played significant effects on pursuing goal orientation among first-year college students: female students were more mastery oriented and motivated extrinsically while male students were more performance oriented. However, Kassaw & Astatke (2017) argue that there were no statistically significant correlations between goal orientation and gender difference, although they found that there were a positive association between gender and academic performance. Boyd (2017) reveals that females endorsed higher goal orientation than males among millennial college students.

Likewise, there is little literature examining the relationship of GO and work experience or age. Kunst, van Woerkom, & Poell (2018) demonstrated that previous work experience was positively related to mastery orientation while negatively associated with performance avoidance orientation in professional development activities. DeGeest & Brown (2011) argue that when skill improvement becomes part of the performance criteria for a developmental assignment, or if success in the assignment is considered essential for continued promotion in the organization, then the effects of performance approach orientations on learning should be strengthened. Klein et al. (2006) showed both age and hours worked were important variables in leadership training; therefore, because most of our students are working, we included work experience and managerial duties as variables in our analyses. In addition, Gong & Freund (2020) suggested that learning orientation decreases while avoidance orientation increases with the increase of age. Finally, Adcroft (2010) showed that there are significant differences in motivation between students in different degree programs and that, as students progress from first to final-year, there are changes to motivation. He also suggested that work experience can have a significant effect on motivation to study. Our hypotheses are:

GO will not differ by gender in healthcare administration students.
Greater work experience will be positively related to GO and perception of barriers.
Graduate students will show an M preference more than undergraduates.

METHODS

Survey Instrument, Questions, and IRB Approval

To investigate the interplay of learning goal orientations, feelings of self-effectiveness, perceived learning barriers and enablers, and satisfaction with coursework, we designed a survey instrument for administration to healthcare administration students enrolled at a major public university. Out of abundant caution for the possible influences of differing backgrounds (discussed in the section immediately preceding), we also examined work experiences and gender in affecting this interplay.

The survey instrument itself was based upon the complete literature review discussed above and especially the work done by Baranik, Barron, & Finney, 2007; Chen, Gully, &Eden, 2001; Klein et al., 2006; and Pilgrim et al., 2018). Questions included on the instrument were largely five-item, Likert-type queries consisting of multiple measures of each individual construct of interest in this study (goal orientations, barriers and enablers, self-efficacy, etc.) (*The questions included on the survey and their source will be found in Appendix A to this paper.)* All of the questions, the survey instrument, and the methods of administering the instrument, including subject selection, were reviewed and approved by the university's Institutional Review Board (IRB).

Subjects and Administration

Subjects were recruited from five (5) graduate-level courses and two (2) undergraduate business school healthcare administration courses. The survey instrument itself was administered during the fall of 2019 and the spring of 2020 semesters by means of Qualtrics, a widely-used online software adopted by the university to engage respondents in data-gathering. A total of 353 students provided completed surveys.

Initial Analysis: Missing and Incomplete Survey Responses

The survey results were initially analyzed for missing or incomplete student responses. Such missing responses were found to be few in number, five (5) or fewer per survey question. However, to avoid a cumulative impact of "case-wise deletion" in analysis and the resulting possibility of subject selection biases, procedures recommended by McKnight, McKnight, Sidani, & Figueredo (2007) for handling missing survey responses were followed. Such procedures included diagnostics, determination of nonrandom biases, and mean substitutions (see especially p. 173-174).

Constructing a Summated Measurement Scale for Each Construct

The *validity* of the survey items *hypothesized* to measure the constructs for this study – again with the exception of the course satisfaction – was determined utilizing principal components analysis (Carmines & Zeller, 1979, p. 62-70; Kerlinger, 1986, p.427; Rummel, 1970; p. 19-20). Frequencies and factor loading tables for GO and SE are provided in Table 1. Central to the determination of construct validity is an analytic solution in which responses to a set of survey items hypothesized to measure a single, underlying construct (e.g., Mastery Approach, self-efficacy, etc.) load on a single factor with an eigenvalue greater than unity (see especially Carmines & Zeller and Rummel, p. 144-145 as just cited). A set of survey items that load on a single factor with an eigenvalue exceeding unity (1.) indicates "unidimensionality," the property that the survey questions are, indeed, measuring the same construct. Results from calculating a principal components analysis for each set of hypothesized items revealed such unidimensionality (single-factor solutions with eigenvalues exceeding unity) for all of the constructs included in this investigation, excepting course satisfaction (See Table 1).

We then constructed a *summated measurement scale* for each of the underlying constructs as discussed by Vogt (1993, p. 226), and Kerlinger (1973, p. 453) composed of several survey items measuring the same construct (i.e., Mastery, SE, etc.). See Appendix B for

these formulas and further explanation. The construction of summated measurement scales is discussed in detail by Boateng, Neilands, Frongillo, Melgar-Quiñonez, & Young (2018) and Odum (2020)[1].

Once the examination of construct reliability and validity was completed and appropriate scales were computed, reliability, univariate (means, medians, standard deviations) and bivariate (ANOVA, Kendall's Tau, Pearson r, t-tests) statistical analyses were conducted using summated scales for GO and SE and independent items for barriers and course satisfaction. All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) with additional insights gained through Excel and Power BI and available from the authors.

Table 1 Factor loadings by construct

Factors	Indicators	Mean	Std.	Factor Score Coefficient
Mastery	Q2	1.71	.957	.098
	Q7	1.40	.655	.429
	Q12	1.49	.701	.290
	Q17	1.73	.955	.137
	Q26	1.89	.975	.182
Mastery Avoidance	Q3	2.46	1.189	.131
	Q13	2.13	1.081	.187
	Q18	2.50	1.140	.254
	Q21	2.51	1.101	.369
	Q24	2.61	1.158	.220
Performance	Q4	3.03	1.320	.042
	Q10	2.11	1.019	.174
	Q20	2.63	1.133	.398
	Q23	2.45	1.047	.282
	Q28	2.56	1.118	.218
Performance Avoidance	Q1	2.06	1.152	.157
	Q6	2.15	1.172	.217
	Q8	2.17	1.223	.258
	Q15	1.82	1.107	.348
	Q27	1.98	1.184	.227
Self- Efficacy	Q5	4.22	.792	.159
	Q9	4.30	.803	.187
	Q11	4.33	.762	.184

[1] Contact the authors for intercorrelations and detailed discussion of how summated measurement scales for each of the constructs (Mastery, Performance, Mastery Avoidance, Performance Avoidance, Self-Efficacy) were constructed.

	Q14	4.44	.656	.161
	Q16	4.50	.744	.182
	Q19	4.16	.951	.179
	Q22	3.85	.847	.152
	Q25	4.09	.861	.164

FINDINGS

Analysis of the Reliability of Measures

The next step in the analysis was to examine actual survey responses for reliability. The reliability of the survey questions designed to measure the theoretical constructs of goal orientations, and self-efficacy as well as course barriers and enablers was determined using *Cronbach's alpha coefficient* (see Carmines & Zeller, p. 44-45; Martin & Douglas, 1997; Ursachi, Horodnic, & Zait, 2015). This analysis revealed that the indicator items for all of the constructs in this study (with the exception of course satisfaction) exceeded .80. The results are shown in Table 2 below.

Table 2: Reliability of Scales

Scale items	Cronbach's Alpha*
Self-efficacy	.863
Barriers	.935
Mastery Orientation	.832
Mastery Avoidance Orientation	.831
Performance Orientation	.833
Performance Avoidance Orientation	.820

As will be noted, the reliability of the course satisfaction measures in the survey are not included in Table 1 because they are treated as independent research questions. We expected satisfaction with one's ability to choose what is needed in a course to enhance one's career not to be closely related to satisfaction with the course structure. An examination of inter-item correlations among the measures supported our expectation. Hence, they are not a reliable construct and we chose to treat responses to each of the three measures independently in the ensuing analysis. For difference reasons, we also treated the barriers as independent items (see below).

Goal Orientation

As can be seen in in Table 3, the GO preference hypothesis suggesting that more HCA students would more likely report an M orientation was supported. The average or mean score for the mastery goal orientation was higher for study subjects than scores for the other three orientations. Indeed, mastery was the only orientation found to differ from zero at statistically significant levels. See below for GO and perception of barriers.

Table 3: Goal orientations among study subjects

	Mastery Orientation	Mastery Avoidance Orientation	Performance Orientation	Performance Avoidance Orientation
Mean	.2941*	-.0067	-.0066	.0238
Standard deviation	.939	.9938	.99863	1.000
N	353	353	353	353

*Denotes statistically significant at P<=.05 using 2-tailed t-test

Of the five items in the mastery scale, we found that "working hard to learn new things" and "understanding the course content thoroughly" contributed more to scale variance than "learn as much as possible regardless of final grade," "doing the school work to get better at it" or "completely mastering the material." (Refer to Appendix A for the complete, exact wording of each survey item.)

Self-Efficacy

We next examined the relationships between goal orientations and self-efficacy – the self-belief about one's capability in performing tasks or learning. We hypothesized that SE would be related to P and especially M orientations, but as can be seen in Table 4, self-efficacy was found associated with all four orientations at statistically significant levels (p>=.01). Self-efficacy was found positively related to the M, P, and PA goal orientations with the strongest relationship found with mastery. We hypothesized that SE would be negatively related to both avoidance preferences but feelings of efficacy were only found inversely (negatively) related to subjects' MA orientation.

Table 4. Relationships (Pearson product-moment correlations) between self-efficacy and goal orientations

	Mastery Orientation	Mastery Avoidance Orientation	Performance Orientation	Performance Avoidance Orientation
Self-efficacy	.397*	-.093*	.125*	.166*

* Denotes correlation is significance at the .01 level.

Barriers/Enablers

In Table 5, the relationships between learning enablers and barriers, on the one hand, and goal orientations, on the other, are shown. It was hypothesized that healthcare administration students would view more items as barriers than enablers and that these relationships would differ by GO preference – that M and P orientations will perceive more items as barriers than PA and MA oriented students. We also suggested that students with an avoidance orientation will more likely perceive items as barriers.

The "time available for school "was found (at statistically significant levels (p>= .05) to be *an enabler* with regard to a mastery orientation. No other *enablers* were found related to the four goal orientations at significant levels. But a number of different learning *barriers* were found related to mastery avoidance, performance avoid, and performance orientations at

significant levels (but none to mastery) thus partially supporting that approach orientations would perceive more items as barriers.

Particularly noteworthy – as observed by their strengths of relationship (Pearson's product-moment correlation) – were the following *learning barriers* found associated with mastery avoidance, performance avoidance, and performance goal orientations. (See those starred and italicized in Table 5).

- *Mastery avoidance*: course flexibility; managing complex discussion forums; time available; access to school representatives for advice and counsel; the quality of materials to be assimilated.
- *Performance avoidance*: quality of materials to be assimilated; course flexibility; ability to predict how the instructor will grade my work.
- *Performance:* the flexible nature of the course, predicting how an instructor will grade.

Table 5: Enablers and goal orientations (Pearson product-moment correlations)

	Mastery Orientation	Mastery Avoidance Orientation	Performance Avoidance Orientation	Performance Orientation
Q36 time available	.115*	*-.175***xx*	-.072	-.097*x
Q40 internet access	.024	-.053	-.121*x	-.076
Q41understand Blackboard	.002	-.151**	-.094*	-.044
Q42 course complexity	.070	*-.178***xx*	-.081	-.044
Q43 access to school reps	.047	*-.172***xx*	-.075	-.038
Q44 assistance from instructor	.008	-.079	-.107*	-.035
Q45 student social interaction	.011	-.140**	-.066	.035
Q46 understanding of course	.042	-.100*	-.117*	-.052
Q47 my financial situation	.039	-.115*	-.093*	-.014
Q48 access to equipment to do course	.054	-.125*	-.132**x	-.040
Q49 predicting how instructor grades	.036	-.148**xx	*-.180***	*-.114*x*
Q50 quantity of class materials	.077	-.104*	-.097*	-.012
Q51 course flexibility	.032	*-.212** x*	*-.194*x**	*-.139**x*
Q52 quality of the materials	.088	*-.114**	*-.204**x*	-.102*x
n	353	353	353	353

** Enabler correlation is significant at the 0.01 level
* Enabler correlation is significant at the 0.05 level
Note: the relationships between enablers and goal orientations are denoted with an X. The relationships between barriers and goal orientations are denoted with a double XX

Course Satisfaction

The relationships found between goal orientations and course satisfaction are displayed in Table 6. We hypothesized that the relationship of overall course satisfaction and satisfaction with course structure will differ by GO and that M will be associated with higher satisfaction with one's choice on what to study. As is evident in the table, the stronger the mastery orientation among study subjects, the higher the satisfaction with one's ability to choose career enhancements in a course and the higher the overall or diffuse course satisfaction at significant levels. Yet, students with a stronger mastery orientation were also found to express lower levels of satisfaction with a course structure. Further, the stronger the performance avoidance orientation, the slightly higher (.11) the level of satisfaction with an ability to choose career enhancements.

Table 6: Relationships (Pearson product-moment correlations) between course satisfaction and goal orientations (n=353)

	Mastery Orientation	Mastery Avoidance Orientation	Performance Orientation	Performance Avoidance Orientation
Overall course satisfaction	.270**	-.08	.07	.051
Satisfaction with course structure	-.244**	.058	-.049	-.063
Satisfaction with ability to choose career enhancements	.310**	-.10	.095	.11*

** Correlation is significant at the 0.01 level. *. Correlation is significant at the 0.05 level.

Gender, Work Experience, and Degree Level

We did not make a specific hypothesis on GO and gender because of inconsistent prior research. Analysis of the mean scores of the four orientations, revealed some gender differences among study subjects. Specifically, females on average were found to exhibit higher mastery avoidance and performance orientations compared to their male counterparts (see Table 7). Yet, no differences between females and males in mastery or performance avoidance orientations were found at statistically significant levels (p>=.05).

Table 7. Gender differences in goal orientation mean scores

	Mastery Orientation	Mastery Avoidance Orientation	Performance Orientation	Performance Avoidance Orientation
Males (n=110)*	.225	-.20**	-.14**	.08
Females (n=236)*	.329	.08**	.11**	-.05

*some subjects (n=7) did not answer the survey question about gender. ** Denotes statistically significant at p>=.05.

We hypothesized that greater work experience will be positively related to GO. The strengths of relationships between work experience and of leadership or managerial experience and goal orientations were calculated using Kendall's Tau-b. We used this statistical model because years of work experience and of leadership or managerial experience were encoded as ordinal level measures on the survey thus necessitating an ordinal strength of association measure. As can be seen in Table 8, years of work experience and of leadership or managerial experience were found only related to mastery and not to other goal orientations at statistically significant levels. However, the relationships between mastery and years of work and leadership or managerial experience were found to be quite weak (.075 and .074, respectively.)

Table 8: Goal orientations by length of work experience and of leadership/managerial experience (table entries are Kendall's Tau-b correlations)

	Mastery Orientation	Mastery Avoidance Orientation	Performance Orientation	Performance Avoidance Orientation
Years of work experience	.075*	-.039	-.024	-.025
Years of leadership or managerial experience	.074*	.013	-.042	.000

* Kendall's Tau-b coefficient is significant at the 0.05 level

It was hypothesized that graduate students will show an M preference more than undergraduates research subjects. On average, graduate students were found to have a stronger mastery goal orientation compared to undergraduates at statistically significant levels (p>=.002). But rather surprisingly, there were no differences between graduate and undergraduate students at statistically significant levels with regard to the other three orientations (see Table 9 below).

Table 9 Comparison of graduate and undergraduate goal orientations (mean scores and statistical significance)

	Mastery Orientation	Mastery Avoidance Orientation	Performance Orientation	Performance Avoidance Orientation
Graduate student subjects (n=161)**	.4706*	-.0730	-.0360	-.0492
Undergraduates student subjects (n=142)**	.1646*	.1004	.0953	.0732

*denotes significance of difference of means between graduate and undergraduate subjects using the t-test for equality of means (p>=.002).

** Forty (40) subjects either did not answer the survey question about undergraduate or graduate standing or responded other.

DISCUSSION

In sum, the results from this naturally occurring case study were largely supportive of the hypotheses. The principal aim of this paper is to enhance curricula and instruction in healthcare administration. To that end, the results of the interplay of learning goal orientations, barriers and enablers, instructional level (graduate versus undergraduate) and satisfaction with students' immediate instructional experiences have been reported while taking into account the background characteristics of prior work and leadership experiences; generalized feelings of self-efficacy; and gender differences that students brought to the classroom. This study reinforces past research but it also provides important findings to help HCA instructors understand their students and better design their courses to match these students' needs.

Goal Orientation

Chief among the findings of this study is that HCA students were strongly inclined toward a mastery orientation to learning rather than to mastery avoidance, performance, or performance avoidance. Moreover, a mastery orientation was found to be stronger among graduate students than undergraduates, among those with elevated levels of self-efficacy, and less strongly among those with more years of work and leadership or managerial experience. Somewhat expectedly, no gender differences were found (at statistically significant levels) in mastery orientation. This was so despite differences between males and females in mastery avoidance and performance orientations.

These findings are in keeping with those of considerable previous research in other populations. Indeed, they are consistent with those of Perrot and others (2001) on the goal orientations of health professions' students in medicine, nursing, and pharmacy. While at one with important previous research, our findings also extend others from previous studies. As noted, Perrot and associates (2001) investigated the goal orientations of health professions' students; but their research did not include either HCA students, an important group of learners, or "avoidance" goal orientations – mastery avoidance and performance avoidance. As our results show, these were important omissions that our research was able to address.

Most importantly, this research amplifies the need for HCA instructors to understand that most of their students may take on an M learning goal orientation in their classes and that this has significant implications for the design of their classes. M students want to master content and become more competent. They should be allowed as much content as each of them can absorb individually. It is likely a strong argument for competency-based education which is based upon students demonstrating their mastery of a subject by showing what they know and applying the concepts at all levels of learning. Put simply, students should be able to show what they know, when they know it, and keep going. Courses for M students should likely be broken down into key competencies or subject areas. To earn credit for these competencies, students would be typically tasked with projects that apply what they've learned and keep them engaged. See Cellucci, Molinari, & Young, (2018) and others.

Constraining order of content or amount of information in a course, intentionally or not, may be inappropriate for M students. It may be best to have open-ended courses with guided choice and active ability to demonstrate competency for these students. They should be assessed and rewarded for increasing their competencies and demonstrating the use of the competency rather than achievement on an instructor-designed testing tool. In other words, tests for recognizing or even recreating knowledge for grades may not be the best learning tool in HCA.

Self Efficacy

This research follows closely the work of Bandura (1997) and of Dierdorff & Ellington (2012) on the importance of self-efficacy in learning and in varying learning orientations. In their research on self-efficacy and goal orientations, Dierdorff & Ellington (2012) found that learners with a high mastery orientation displayed higher feelings of self-efficacy while those with a performance avoidance orientation showed lower self-efficacy levels. We found the same to be true, but by investigating more fully the "avoidance categories" (mastery and performance avoidance) our findings showed self-efficacy to be *inversely* related to feelings of mastery avoidance. This is a significant finding which carries with it important teaching and future research implications. Individuals with lower SE have feelings of inadequacy when faced with challenge. Those with avoidance orientations wish to avoid completing a complex task or a task needing considerable effort and they may have less motivation to learn. These students mostly want to avoid failure and thus they avoid complex, difficult tasks or competencies. Making courses more structured, with less content, and less choice may appeal to students with lower SE and higher avoidance orientation, but it may be the opposite approach we should be taking in HCA courses – especially at the graduate level – if we find more of our students have high SE and take on an M goal orientation.

By focusing on increasing an M orientation and a more positive SE identity, every student can become an active achiever and possibly a life-long learner. This becomes even more critical in the coronavirus pandemic where our educational institutions are now carrying out their respective missions by providing more on-line learning. With this format, our students who do feel inadequate may not attend well to their assigned subjects (Kleinet al., 2006). They have been used to their instructors explaining the material to them in more informal ways. M orientation and higher SE will should increase the ability of students to perform in online

environments. Instructors understanding the effects of GO, SE, and perceived barriers is a start, but adding competency-based instruction, choice of where to begin (but rubrics to guide them), and gathering information about student's SE and GO, and job level will help instructors tailor their instruction.

Barriers/Enablers

Other noteworthy findings here include variations in perceived learning enablers and barriers among those differing in learning goal orientations. Additionally, those differing in goal orientations evaluated their courses and elements of them variously, particularly with regard to structure and to an ability to choose career enhancements. In their previous research on the subject, Pilgrim and associates (2018) reportedly found that enablers and barriers to competency learning were related to five over-arching themes: course content; relevance; structure; support networks; time and stress; pre-requisite knowledge, skills and experiences; and, access to technology. In our study we found quite similar if not identical results. But our investigation was able to extend the work of Pilgrim et al. (2018) through our finding that learning enablers and barriers were distinguishable by the student's goal orientation.

Course developers need to be aware of the links we found between learning goal orientations, on the one hand, and learning enablers and barriers, on the other. While we cannot be certain of the way cause and effect runs, any intervention intended to change instruction should consider the perception of these barriers and their effect on the goal orientations of students. Furthermore, instructors should consider such links in anticipation of any attempt at modifying the perceptions of students about the altered learning environment they are about to face. Changing classroom delivery methods or course expectations could strengthen or weaken students' existing perceived barriers and enablers, an important matter for future causal research.

Past research has been inconsistent on the perception of barriers/enablers in instruction and which perceived situational factors are likely to help or hinder achievement. However, this study sheds some light on how HCA students perceive the small number used here and how that differs by goal orientation. It may useful for future researchers to present more specific, finely grained items to HCA learners in future studies rather than the general factors used here.

Course Satisfaction

Our findings on course satisfaction, especially on variations in course evaluation elements according to goal orientations, seem at one with Festinger's (1957) research on cognitive dissonance. For example, students in our investigation with a mastery orientation were found likely to report working hard to learn new things, to doing work to get better at it, and a desire to completely master materials (see the questions in Appendix A). Students who invest considerable time and work in their courses are likely to value it and feel satisfied with it as part of a process of dissonance reduction in self-justifying their efforts. Finally, Klein and others (2006) found as we did that learners' perceptions of barriers were related to their motivation and orientations to learn.

While other studies have shown GO to be related to general satisfaction and performance (Roebken, 2007), we also examined satisfaction with course structure and ability to choose

course elements in relation to study variables. HCA students pursue degrees generally to further their career and pursue a mission. The stronger their mastery orientation, the higher the satisfaction with one's ability to choose career enhancements in a course. Yet, students with a stronger mastery orientation were also found to express lower levels of satisfaction with course structure. We did not compare course structure, but these findings are likely consistent with our expectations. Students with an M orientation would want to choose what competencies they work on – especially graduates – but are unhappy in classes where they cannot. This deserves further study.

Implications for Curricula and Instruction

The findings of our research suggest important implications for curricula and instruction. Given the differences shown above concerning variations in goal orientations, our findings suggest the importance of designing instructional interventions to facilitate changes in such orientations among students where needed (see Wang, Wu, Parker, & Griffin, 2018). Such interventions should especially highlight the value of mastery over other orientations, not only what mastery entails for graduate study and competency learning (see the measurement components in the mastery scale in Appendix A), but also for what it likely means for life-long learning. One practical implication of the study of goal orientation is that student applicants could be screened on the basis of both a high mastery as well as a high-performance orientation to determine how they might react to course elements. Another is that M preference students may react positively to more choice of learning elements and pace because M goal orientation is associated with both setting higher goals and maintaining higher performance over time. Keep in mind that most, if not all, of our students will not know their own goal orientation preferences.

More research is needed to determine the proportion of goal orientations, how to encourage M orientation, and what the best practices for teaching M students are. Furthermore, it may be that older, more experienced adults associate more with M preference. On the other hand, females at all levels may exhibit higher mastery avoidance and performance orientations compared to their male counterparts. This makes determining goal orientation important and designing instruction more difficult. It may call for very individualized training around a wide range of competencies and competency level. Geitz, Brinke, & Kirschner (2015) claim that business school undergraduate students can shift from performance oriented to be mastery oriented if they receive sustainable feedback.

Interventions to promote changes in orientation seemingly need to be designed particularly for women students. Recently, AUPHA (2020) reported that only 26% of hospital CEOs are women. Females in our study were found to be more oriented than men toward mastery avoidance and performance, but not toward mastery. More gender-diverse top leadership in hospitals might be encouraged through classroom exercises that help those with MA or PA preferences shift toward a mastery orientation and be comfortable with it. Instruction may need to reduce grading elements that promote these orientations and more to reduced instructor assessment and more towards self-assessment – at least for those with an M preference (which may be the larger group in HCA classes). Yet, besides altering some classroom structures being

perceived as barriers, there is little known about interventions to change future goal orientations of students. This calls for considerable future research.

Instructional interventions designed to change learning goal orientations should be accompanied by exercises and activities that promote self-efficacy. Our findings showed the importance of self-efficacy in relation to all four goal orientations, but especially to mastery where the relationship with efficacy was direct and strongest. In our experience as instructors in HCA, self-efficacy attains particular consequence through its additive effect on teamwork. The courses from which our research subjects were drawn emphasize instruction through teams often with students staying in the same learning groups across classes and over time. Individual team members' perceptions of their own capabilities often influence perceptions of the efficacy of others in team contexts (Kozlowski, Gully, Salas, & Cannon-Bowers, 1996). Such perceptions, in turn, can create efficacy beliefs about the team as a whole (Gully, Incalcaterra, Joshi, & Beaubien, 2002). Successful team performance requires coordination of learning among team members which we believe to be affected by the extent to which individuals feel confident in their own capabilities to accomplish the tasks presented during team training. Yet, we cannot minimize the difficulties associated with trying to enhance self-efficacy. Such enhancement among individual students probably entails the need for a sense of security in the instructional setting to encourage an environment of self-exploration.

Finally, we found evidence of variations in what subjects with a strong mastery orientation found satisfactory in their courses as well as differences in satisfaction across the four goal orientations. This evidence suggests that student-based evaluations of instruction should include considerations of these goal orientations. This seems particularly the case since student evaluations have come to be prominent in course revision, program accreditation, and decisions about faculty hiring and retention. Such consideration of students' goal orientations could also take place at baseline in course introductions to assist in guiding instruction as well as in course assessments at the end of an academic term to enhance the interpretation of results.

CONCLUSIONS

This research attempts to illustrate the importance of student goal orientation and other personal characteristics in healthcare administration programs for instructors interested in providing avenues to promote lifelong learning. With the information provided in this study and future ones, suitable and appropriate instructional methods can be designed to facilitate individual students gaining competencies and showing their level of attainment based on student learning motivation and identity in the classroom or online. Understanding the learning goal orientation of our individual students – which is not typically done – seems to be a starting point. Intervening with students with avoidance orientations will help these students. Designing classes to promote M orientation for learning over P is the next desired direction. Providing competency-based education with active assessment is important. In addition, this and future research will help healthcare administration programs to raise the quality of existing lifelong learning approaches in a way that it is more realistic, innovative, self-paced and interactive. As

such, healthcare leaders will become more independent, creative, diverse and dynamic in the near future.

STUDY LIMITATIONS AND FUTURE RESEARCH

Implications of findings for curricula and instruction aside, our study is not without its limitations. One such limitation is that our survey data were gathered from "convenience" samples of students within a college of business HCA program located near a major medical center. The results are likely not to be representative of students in the college or of other health professions students or colleges. Future research on more representative samples drawn from other healthcare populations seems needed.

Furthermore, approximately 29 percent of the respondents completed the survey Jan.1 to March 30, 2020, as they were just beginning to face the threat of the COVID pandemic. Study data collection ceased in early April, 2020. While the majority of the sample was collected before anyone understood the pandemic, the results might still be viewed as many did as they mostly work in a very large, internationally-focused medical center.

An accompanying limitation is that our results are based on cross-sectional evidence. As Coleman (1964;1968), Blalock (1968) and Markus (1979) long-ago observed, cross-sectional data frequently offer useful descriptions, but the theoretical merit of findings based on such data requires the assumption that a set of variables are in equilibrium over time. Given our focus on changing, or "enhancing" curricula and instruction as we expressed it earlier, data gathered on observations collected over time appear considerably more preferable for shedding additional light. The collection of panel data on the same subjects analyzed by means of appropriate models of change (Coleman, 1964; Markus, 1979, Durand & Durand, 1992) seems a quite promising avenue for the future.

Moreover, although goal orientation has been well-studied in education, most research has investigated goal orientation as a relatively stable variable, rather like a personality trait. Little is known about the extent to which an individuals' goal orientation can be changed and about whether some individuals are more likely than others to be amenable to such change. Future researchers should investigate the potential to alter goal orientations by means of different kinds of interventions.

Finally, the measurement of perceived learning barriers or enablers is another limitation of our study in need of future research attention. We asked our study subjects to rate from low to high the extent to which each of a number of learning delivery factors was a barrier. For each such delivery factor there could be several simultaneous issues that could be perceived as either a barrier or enabler. For example, in "access to the Internet" the location of the computer lab could be perceived a barrier, yet the number of computers, their processing speeds, and software applications could be viewed as enablers. Accordingly, we recommend that in future research respondents assess the extent to which each factor is perceived to be barrier separately from the extent to which that same factor is perceived to be an enabler. We also recommend the use of focus groups of students to assist in interpreting results about learning facilitation.

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APPENDIX A: Survey Questions and Summated Measurement Scale Formulas

Items	Survey questions	Adapted from	Reliability
Perceived Barriers	14 items Q36. "The time I have available for school." Q40. My access to Internet connectivity." Q41. "My understanding of Blackboard." Q42. "Navigating a complex website/content domain or discussion forums." Q43. "Access to school representatives for advice and counsel." Q44. "The ability to get assistance from the instructor. Q45. "Social interaction with other students. Q46. "My understanding of the course requirements." Q47. "My financial situation." Q48. "My access to adequate equipment to complete the course." Q49. "My ability to predict how the instructor will score my work." Q50. "The quantity of materials to be assimilated. Q51. "The flexible nature of the course." Q52. "The quality of the materials to be assimilated."	Klein et al (2006) and Pilgrim, Hornby & Macfarlane (2018)	In Klein, a single composite was formed of 15 items and the internal consistency reliability estimate for this scale was .88.

GO Questionnaire	20 items **Mastery Orientation (M)** Q2. "I want to learn as much as possible from this class – regardless of my final grade." Q7. "I will work hard to learn new things in this class." Q12. "It is important for me to understand the content of this course as thoroughly as possible." Q17. "I do my school work to get better at it." Q26. "I desire to completely master the material presented in this class." **Mastery Avoidance Orientation (MA)** Q3. "I am often concerned that I may not learn all that there is to learn in this class." Q13. "Sometimes I'm afraid that I may not understand the content of this class as thoroughly as I'd like." Q18. "I am anxious that I may not master all that I should learn in this class." Q21. "I worry that I may not learn all that I possibly could in this class." Q24. "I feel uneasy that I may not understand what I need to learn in this class." **Performance Orientation (P)** Q4. "I would feel really good if I were the only one who could answer the teacher's question in front of my peers." Q10. "I want to do better than the other students in this class." Q20. "It is important for me to do better than other students." Q23. "It is important for me to do well compared to others in this class." Q28. "My goal in this class is to get a better grade than most of the other students." **Performance Avoidance Orientation (PA)** Q1. "My fear of performing poorly in this class is often what motivates me." Q6. "Most importantly, I don't want to look stupid in this class." Q8. "One of my main goals is to avoid looking like I can't do my work."	Baranik et al (2007) and Elliott & McGregor (2001).	Baranik et al's (2007) Cronbach's a values were .89 for mastery-approach, .74 for mastery-avoidance, .88 for performance-approach, and .77 for performance-avoidance.

	Q15. "My main goal in this class is to avoid performing poorly." Q27. "I just want to avoid doing poorly in this class."		
Self-Efficacy	8 items Q5. "I will be able to achieve most of the goals that I set for myself in this class." Q9. "When facing difficult tasks, I am certain that I will accomplish them." Q11. "I will be able to successfully overcome any challenges in this class." Q14. "In general, I think that I can obtain outcomes that are important to me." Q16. "I believe I can succeed at most any endeavor to which I set my mind." Q19. "I am confident that I can perform effectively on any tasks in this course." Q22. "Compared to other people, I can do most tasks very well." Q25. "Even when things are tough, I can perform quite well."	New General Self-Efficacy Scale (NGSES) developed by Chen, Gully, and Eden (2001).	NGSES instrument has been shown to be both reliable (α = .87, .88, and .85) and valid (Chen et al., 2001).
Course Satisfaction	3 items Q32. "How satisfied are you with this class overall?" Q34. "How satisfied are you with the structure of this class?" Q35. "In this class, how satisfied were you with your ability to choose what you needed do to enhance your career?"	Developed by the authors of this study	-

APPENDIX B: Summated Measurement Scale Formulas

Below, the reader will find summated measurement scales for each of the constructs (Mastery, Performance, Mastery Avoidance, Performance Avoidance, Self-Efficacy) of interest in this study. This summation is based on "Item Response Theory" and the practices recommended by it. A reader interested in more discussion should consult Boateng & others, 2018, and Odum, 2020. Contact the authors for more details.

This widely-used, recommended procedure to construct summated scales is done by initially standardizing each of the validated component survey items. In effect, this procedure ensures that individual variables comprising a summated scale all are measured with the same zero mean score (0) and the same standard deviation of unity (1). Thus, variable means and standard deviations of the component items of a summated scale cannot result in measurement artifacts.

A uni-dimensional, summated measurement scale for each construct was devised utilizing multiple survey questions for each, based on the results of tests for reliability and validity. We weighted each survey question by its respective factor score coefficient after standardizing each by subtracting its mean and dividing by its standard deviation. Then we summated across the weighted, standardized survey questions measuring what were found to be valid, reliable survey items for a construct.

Mastery = .098*((Q2-1.71/.957) + .429*((Q7-1.40)/ .655) + .290*((Q12-1.49)/ .701) + .137*((Q17-1.73)/ .955) +. .182*((Q26-1.89)/.975)

Masteravoid = .131*((Q3 - 2.46)/ 1.189) + .187*((Q13-2.13)/ 1.081) + .254*((Q18-2.50)/ 1.140) + .369*((Q21-2.51)/ 1.101) + .220*((Q24-2.61)/ 1.158)

Perform = .042*((Q4-3.03)/1.320) + .174*((Q10-2.11)/ 1.019) + .398*((Q20-2.63)/ 1.133) + .282*((Q23-2.45)/ 1.047) + .218*((Q28-2.56)/1.118)

Perfavoid = .157*((Q1-2.06)/ 1.152) + .217*((Q6-2.15)/ 1.172) + .258*((Q8-2.17)/ 1.223) + .348*((Q15-1.82)/ 1.107) + .227*((Q27-1.98)/ 1.184)

SelfEff = .159*((Q1-4.22)/.792)+.187*((Q2-4.3)/.803) + .184*((Q3-4.33)/.762) + .161*((Q4-4.44)/.656) + .182*((Q5-4.6)/.744) + .179*((Q6-4.13)/.95) +.152*((Q7-3.85)/.847) + .164*((Q8-4.09)/.86)