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Differentiating Performance Approach Goals and Their Unique Effects

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Abstract The study differentiates between two types of performance approach goals (competence demonstration performance approach goal and normative performance approach goal) by examining their unique effects on self-efficacy, interest, and fear of failure. Seventy-nine students completed questionnaires that measure performance approach goals, self-efficacy, interest, and fear of failure. Partial Least Squares (PLS) was used to examine effects of each performance approach goal on the outcomes. Normative performance approach goal had a significant positive effect on self-efficacy and interest, but had no effect on fear of failure. In contrast, competence demonstration performance approach goal had a significant positive effect on fear of failure, but was not related to self-efficacy and interest. Theoretical, methodological, and practical implications of the findings are discussed.

Keywords Achievement Goal Orientation, Goal Theory, Goals, Motivation, Performance Approach Goal, Self-Efficacy, Interest, Fear Of Failure

1. Introduction

This study investigated the types of performance approach goal orientations and their unique effects on other variables. Goal Theory has evolved as a major research area in Achievement Motivation and a plethora of research has documented the link between achievement goal orientations and learning outcomes[e.g.,2,8,14,31,33,35,50,54,93]. However, the empirical findings have been inconsistent, specifically regarding the performance approach goal [12,82,87]. As such, several attempts at clarifying the contrasting results were made [see 6,26,27,31,87]. One notable proposal and the one relevant to the current research, was to partition performance approach goals into two distinct goals (29,47,89].

Empirical research has differentiated between these types of performance approach goal and has confirmed that these goals indeed have contrasting links with achievement-related outcomes and other motivational constructs [e.g, 23,47]. However, presently, achievement goal researchers adopt a unitary framework of performance approach goal across the literature. Consequently, there is a lack of studies that systematically compared the two types of performance approach goals, and concurrently explored their unique links to academic-related outcomes and motivational variables. The paper begins with a brief review of the achievement goal theory and ends with implications of the current research.

1.1. Achievement Goal Theory

Achievement goal theory proposes that individuals hold a set of beliefs, emotions, perceptions, and attributions that informs the way they approach achievement activities [11]. Goal orientation is defined as the reasons individuals engage in achievement-related activities [55,63].In any academic situation, goal orientations are believed to be an integral and critical part of the experience, not only guiding cognitive processes, but influencing behaviors and emotions [1,31]. Theorists have identified complementary types of goals that form different goal frameworks [see 28,33,72]. First, they proposed a dichotomous goal framework that partitioned goal orientation into two main types of goals: mastery and performance goals [1,26,27]. Individuals with a mastery goal focus on developing competence and individuals under a performance goal aim to demonstrate competence or to avoid appearing incompetent.

Given the inconsistent evidence about the relationship between the performance goal and achievement outcomes, the performance goal was bifurcated into approach and avoidance orientations resulting in a trichotomous goal framework with mastery, performance approach, and performance avoidance goal orientations [27,32]. In this framework, the performance approach goal represents a focus on demonstrating competence and performance avoidance focuses on preventing the appearance of incompetence.

Presently, there is a four-construct model of goal orientation [37] where the mastery approach goal entails engaging in achievement tasks to develop competence, performance approach involves completing achievement tasks to demonstrate ability or outperform others,

performance avoidance entails disengaging in achievement tasks to not appear incompetent or avoid doing worst than others, and mastery avoidance involves engaging in achievement tasks to avoid misunderstanding.

There is a great deal of research linking all four achievement goal constructs to achievement outcomes [see 55] for a review of the achievement goal orientations). For instance, mastery approach goal orientation has been linked to positive outcomes including long-term retention of information [33] intrinsic motivation [30] help seeking [65,76], high performance outcomes [30], persistence and effort [35,73], help-seeking, better self-regulation [73], attribution of success to effort [2], positive affect following successful effort [54], preference for challenging tasks [2], adoption of deep learning strategies [33], positive attitudes [2], better retention of information [33] intrinsic interest in learning [14], and adaptive reading patterns and outcomes [50,61,93].

Mastery avoidance goal is consistently correlated with negative factors such as disorganized studying, state test anxiety, and worry [34], low levels of intrinsic motivation [22], help seeking [56], and low semester GPA [41]. The findings are similar for performance avoidance goal orientation in that it is linked to low absorption during task engagement [32], an unwillingness to seek help with schoolwork [62,90], reduced intrinsic motivation [30], low efficacy, low grades, and self-handicapping strategies [90].

However, the findings regarding the effects of the performance approach goal show mixed patterns across studies. For example, the performance approach goal has been found to correlate with positive factors such as high performance outcomes [30], academic self-concept [68], performance and high expectations for success [30], and intrinsic motivation [30]. Yet, it is has also been linked to negative outcomes such as inability to retain information and disruptive behavior [63] and higher avoidant help seeking [76].

1.2. Performance Approach Goal

Theorists have posed several explanations for the conflicting patterns of results for the performance approach goal [87]. One line of thinking opined that outcomes that are closely related to the performance goal (i.e., fear of failure and need for achievement), may account for the conflicting results, and not necessarily the performance approach goal [27]. Others have adopted the multiple goal perspectives to explain the inconsistencies; they argue that the performance approach goal is most beneficial when paired with a mastery goal and least effective in yielding positive effects when endorsed alone [5,6,9]. Some proposed that variables such as emotional experiences and regulation, which mediate the relationship between performance approach goals and achievement outcomes, may also explain the conflicting patterns of findings [59,70,71,87].

Others believe that the performance approach goal comprises of distinct sub-constructs, each with varying effects on achievement outcomes [28,30,47.89] that may very well explicate the conflicting findings. Years of debate about the nature of these performance approach goals [see 82 for a review of the performance approach goal debate] have centered on two types of performance approach goals: competence demonstration and normative performance approach goals. Competence demonstration performance approach goal (competence demonstration PAP) is focused on demonstrating one's ability without accounting for others' performances [24,55,66,89]. On the other hand, normative PAP is rooted in comparisons and competition against others [28,29 32,38,47]. The two perspectives both have strong theoretical foundations [55].

Empirical research has shown connections between the performance approach goal constructs and other learning outcomes. Particularly, the competence demonstration PAP goal is generally linked to negative outcomes including text anxiety, low self-efficacy, and low levels of interest [e.g., 2,31,47,58]. However, the normative PAP goal yields null or positive effects for the same outcomes within similar populations [e.g., 33,85,92].

In sum, normative PAP is typically related to several positive outcomes, unrelated to some negative and positive outcomes, but inconsistently linked to negative outcomes [36]. In contrast, competence demonstration PAP is more reliably linked to negative outcomes [53,82].These findings provide evidence suggesting that the types of performance approach goals are dissimilarly related to several learning outcomes. However, the literature is limited in that most research investigating the performance approach goal only examines one type of the goal. Systematic examinations of the two constructs have received little empirical consideration.

However, one notable study by Grant and Dweck [47] examined several types of performance approach goals (e.g., outcome, ability/competence demonstration, and normative) and their effects on several variables. Their findings show that the ability goal or competence demonstration PAP goal is related to negative outcomes including helplessness after failure, lower perception of self-worth, loss of intrinsic motivation, lower grades after repeated poor performance, and low ability attributions. However, competence PAP goal was linked to higher grades after repeated good performance. On the other hand, normative PAP goal was linked to higher perception of one's own abilities, and was unrelated to loss of intrinsic motivation, withdrawal of time and effort, and help-seeking. However, it was negatively related to deep processing. Outcome PAP was found to strongly correlate with the other two constructs and was therefore was ruled out as a separate construct.

Despite the systematic investigation of performance approach goal sub-types and their links to academic-related outcomes, Grant and Dweck [47]utilized a distinct population of high achieving students and conducted their investigations employing hypothetical generic situations. As such, it is essential for researchers to understand the effects of the subtypes of performance approach goal for

other student groups in more natural academic settings for other variables. It is equally important that researchers concurrently explore these effects [82]. Currently, there is a lack of studies concomitantly comparing the effects of the two types of performance approach goals. The present study addresses this gap in the literature.

1.3. The Current Study

The purpose of the current study was to differentiate between normative and competence demonstration PAP goals, by comparing their distinct effects on self-efficacy, interest, and fear of failure. One main question was asked: Does normative and competence demonstration goal yield differing effects on self-efficacy, interest, and fear of failure? The question was answered using Partial Least Squares (PLS), a variant of structural equation modeling.

1.4. Hypotheses

The primary aim of the current study was to examine the paths among the sub-types of the performance approach goal and other outcomes including self-efficacy, interest, and fear of failure. Given the findings reviewed in the preceding section, two main hypotheses were posed:

1.4.1. Hypothesis 1

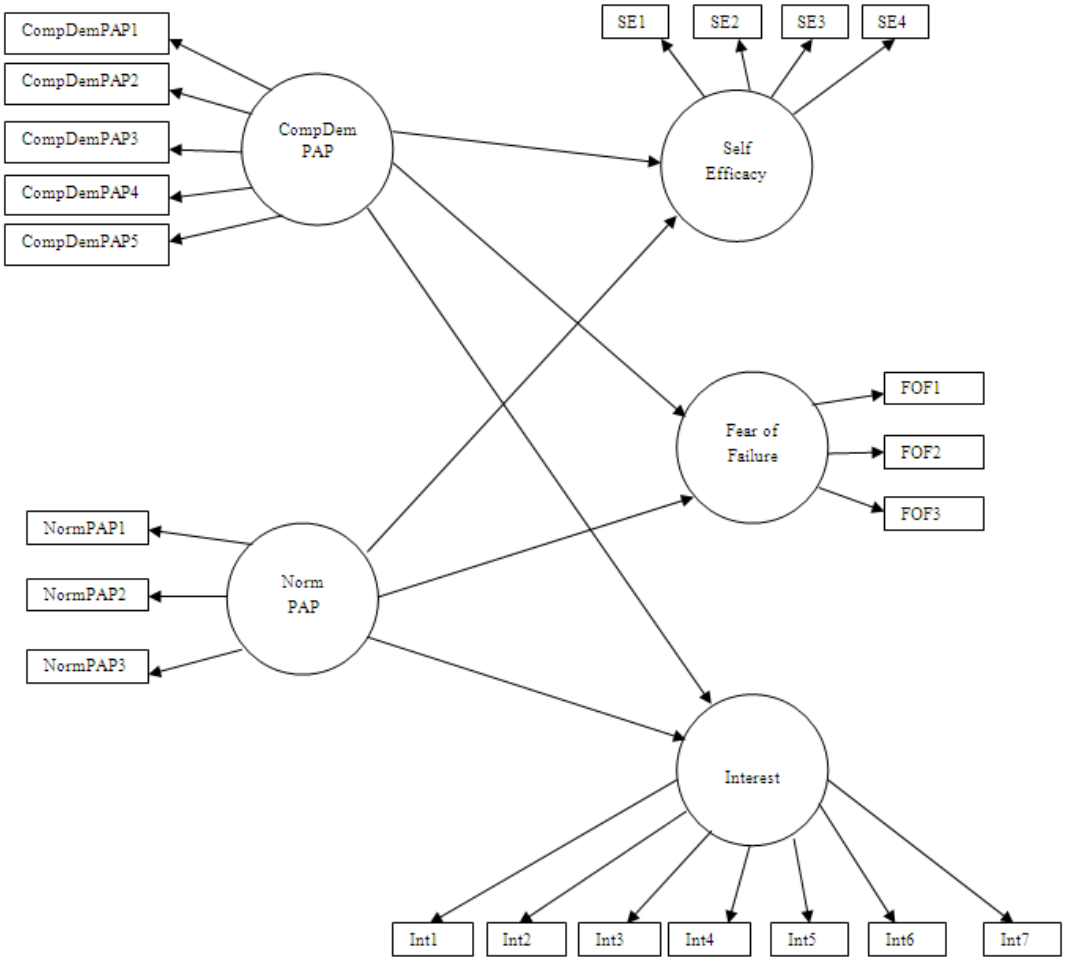
Normative PAP will positively predict self-efficacy and interest and have negative or no influence on fear of failure.

1.4.2. Hypothesis 2

Competence demonstration PAP will negatively predict self-efficacy and interest, but positively influence fear of failure.

1.4.3. Hypothesized Model

To examine the hypothesized relationships, a path model was proposed using PLS. In the model, normative PAP goal was expected to positively influence self-efficacy and interest, but negatively influence or have no relationship with fear of failure. However, competence demonstration PAP goal was predicted to negatively affect self-efficacy and interest, but positively influence fear of failure. Figure 1 presents the hypothesized path model (*structural* model) and the *measurement* model.



Note:.NormPAP = Normative Performance Approach; CompDemPAP = Competence Demonstration Performance Approach; SE = Self-Efficacy; FOF = Fear of Failure; Int = Interest.

Figure 1. Hypothesized Model

2. Materials and Method

2.1. Participants

A total of 79 undergraduate students (60 females, 19 males) from a mid-size university in the Southwestern United States participated in the study. The combined mean age of participants was 25.5 (SD = 8.9) years old with a range of 17 to 62 years. On average, participants had a 3.21 (SD = .46) self-reported GPA. Seventy-seven percent of participants were white, 13.9% black, 2.5% Hispanic, 2.5% Asian, 2.5% of mixed race, and 1.3% did not identify ethnicity. Altogether, juniors made up 48.1% of the sample, seniors 25.3%, sophomores 16.5%, and freshmen 10.1%.

2.2. Measures

2.2.1. Competence Demonstration PAP

Competence Demonstration PAP was measured using the student version of the PALS. The student version of the Patterns of Adaptive Learning Scales (PALS) [64] consists of three subscales totaling 14 items: Mastery, Performance Approach, and Performance Avoidance. The current study focused on the Performance Approach sub-scale, which consist of 5 items. The performance approach scale focus on the desire to demonstrate one's competence (i.e., competence demonstration items). Items on the PALS are anchored along a 5-point scale ranging from 1 (not at all true) to 5 (very true). Students were asked to indicate how the number corresponding to each statement on the scale best describes what they think.

Previous research by Midgley et al. [64] of the PALS demonstrated good fit. Confirmatory Factor Analysis (CFA) on the 14 personal goal orientation items confirmed the expected model and showed a Goodness of Fit Index (GFI) of .97 and an Adjusted Goodness of Fit Index (AGFI) of .95. The mastery, performance-approach, and performance-avoidance goal orientations all loaded on different latent factors. Midgley et al. [64] reported reliability alpha for the performance-approach goal orientation subscale of .89. Alpha reliability for the current scale was .79.

2.2.2. Normative PAP

The 12-item Achievement Goal Questionnaire (AGQ)-Revised [37]was used to assess students' normative PAP goal. The instrument yields four non-overlapping scales, each with three items: mastery approach, mastery avoidance, performance approach, and performance avoidance. The performance approach scale measures normative strivings. Students completed the instrument by indicating the extent to which they judged an item was "not at all true of me" = 1 to "very true of me" = 7.Students were asked to indicate how the number corresponding to each statement on the scale best describes what they think. The scale has demonstrated sound psychometric properties [see 37. The current study yielded a reliability estimate of .88.

2.2.3. Interest

The interest questionnaire was adopted from Harackiewicz, Barron, Tauer, Carter, and Elliot [48], but items were rewritten and a few were removed to reflect general interest in school rather than a focus on a specific course. This resulted in 9 items on the interest scale. Participants indicated their degree of agreement on a scale ranging from 1 (strongly diagreee) to 7 (strongly agree). Alpha reliability for the current scale was .89.

2.2.4. Fear of Failure

Fear of failure was assessed with the short form of the Performance Failure Appraisal Inventory (PFAI-S) [21]. Participants rated how much they believed each statement regarding their fears of failure (e.g., "When I am failing, I am afraid that I might not have enough talent"). Five items were rated on a five-point scale ranging from 1 (do not believe at all) to 5 (believe 100% of the time). Previous studies have confirmed adequate psychometric properties of the PFAI-S [19,20]. Alpha reliability estimate for the present scale was .78.

2.2.5. Self-Efficacy

Self-efficacy items were adapted from the Self-Efficacy subscale of the Motivated Strategies for Learning Questionnaire (MSLQ) [74]. The scale consisted of 5 items. Sample items included, "I'm confident I can learn the basic concepts taught in my classes," and "I'm confident I can do an excellent job on the assignments and tests in school." Reliability alpha for the scale was .89.

2.3. Procedure

2.3.1. Data Collection Procedure

Midway into the semester, participants were solicited to participate in the study via email. Once consents were obtained, students completed the questionnaires for the two types of goals along with fear of failure, self-efficacy, and interest. Questionnaires were administered online using the online survey tool Survey Monkey (www.surveymonkey.com).

2.3.2. Data Analysis Procedure

A structural equation model (SEM) was estimated utilizing Partial Least squares (PLS) using the bootstrap method in SmartPLS[75]. PLS estimates the component score of the latent variable by calculating the weighted sum of the indicators; instead of estimating population parameters by producing a covariance matrix like covariance based SEM, PLS maximizes the variance of the dependent variables explained by the predictors [18].

This approach to SEM was adopted because it is exploratory in nature, particularly when as there is no solidly established theory. In addition, it accommodates small

sample sizes. According to Barclay, Higgins, & Thompson [4], the sample size in PLS should have at least ten times more data points than the maximum number of arrows pointing to a latent variable. In the present study, the maximum number of arrowheads pointing to one latent variable was 4; consequently, the minimum sample needed in the present study was 40, making 79 participants a satisfactory sample size. PLS also allows for interrelations among observations, it does not require an assumption of normality, and the path model's primary aim is to make predictions about the effects of a large set of independent variables (predictors) on a set of dependent variables [See 3,4,17,18].SmartPLS analyzes both the *structural* and *measurement* models. It tests the psychometric properties of the *structural* model and estimates the path coefficients of the *measurement* model. In addition, the bootstrapping method estimates *t-values* of each path coefficient to evaluate the significance of the paths in the model.

3. Results

3.1. The Measurement Model

The first step in PLS is to analyze the measurement model (outer model) to evaluate how well each item load on their respective latent construct. SmartPLS provides factor and cross loadings of all items on the specific construct and their T-values. Chin [16] prescribed an acceptable factor loading of .71. Factor loadings for two items on the interest scale, two on the fear of failure scale, and one on the self-efficacy scale were below the acceptable value so they were removed from the model. Subsequently, all items loaded highly on their respective scale ranging from .72 to .91. T-statistics indicate that all factors loadings were statistically significant (*p*s< .05). Moreover, factor loadings were higher on the intended construct than on any other construct. These results indicate that there was convergent validity of the items on their respective latent construct. It should be noted that consistent with prior research [see 47], normative PAP and competence demonstrate PAP are distinct constructs and participants clearly distinguished between the two constructs. Table 1 presents factor loadings and cross loadings of the items on the latent constructs.

Internal consistency of the items was examined by evaluating the composite reliability. Estimates across measures ranged from .85 to .93, indicating that the measures had strong internal consistencies and exceeded Chin (1998)'s recommendation of .80. Average Variance Extracted (AVE) was also estimated. AVE is the average communality for each latent variable. An AVE of more than .50 was recommended by Fornell and Larcker [42]. All measures exceeded the recommended value. Table 2 presents composite reliability statistics and AVE for each measure.

In order to evaluate discriminate validity or intercorrelations of the constructs, the square roots of the average variance extracted (AVE) for each construct (represented on the diagonal and bolded in Table 3) must be greater than correlations among constructs (on the off diagonals in the table) [42]. The square root of the AVE of each latent variable was greater than the intercorrelations among the constructs for each variable, indicating good discriminant validity.

Table 1. Factor Loadings and Cross Loadings

	FOF	Interest	SE	Norm PAP	CompDem PAP
FOF1	**.78**	-.24	-.16	.11	.35
FOF2	**.79**	-.14	-.09	.18	.28
FOF3	**.85**	-.15	-.09	.18	.38
Int1	-.14	**.81**	.52	.18	-.11
Int2	-.23	**.83**	.53	.14	-.12
Int3	-.28	**.78**	.55	.14	-.09
Int4	-.24	**.87**	.53	.18	-.14
Int5	-.20	**.72**	.35	.08	-.23
Int6	-.04	**.80**	.37	.29	-.00
Int7	-.18	**.82**	.49	.33	-.08
SE1	-.15	.45	**.87**	.37	.09
SE2	-.15	.60	**.84**	.24	-.12
SE3	-.04	.54	**.91**	.36	.10
SE4	-.17	.52	**.90**	.41	.07
Norm PAP1	.19	.20	.35	**.85**	.21
NormPAP2	.18	.11	.24	**.78**	.32
NormPAP3	.13	.28	.39	**.88**	.29
CompDemPAP1	.32	-.05	.04	.22	**.76**
CompDemPAP2	.30	-.07	.04	.21	**.82**
CompDemPAP3	.20	-.19	-.05	.19	**.78**
CompDemPAP4	.40	-.15	.07	.38	**.91**
CompDemPAP5	.45	-.11	.06	.28	**.90**

Note: FOF = Fear of Failure,Int = Interest, SE = Self-Efficacy, NormPAP = Normative Performance Approach, CompDem PAP = Competence Demonstration Performance Approach.

Table 2. Composite Reliability Statistics and Average Variance Extracted (AVE) for each Measure

Measure	Composite Reliability	AVE
FOF	.85	.65
Interest	.93	.65
SE	.93	.77
Normative PAP	.88	.71
Comp. Dem PAP	.92	.70

Note: FOF = Fear of Failure, SE = Self-Efficacy, NormPAP = Normative Performance Approach, CompDem PAP = Competence Demonstration Performance Approach.

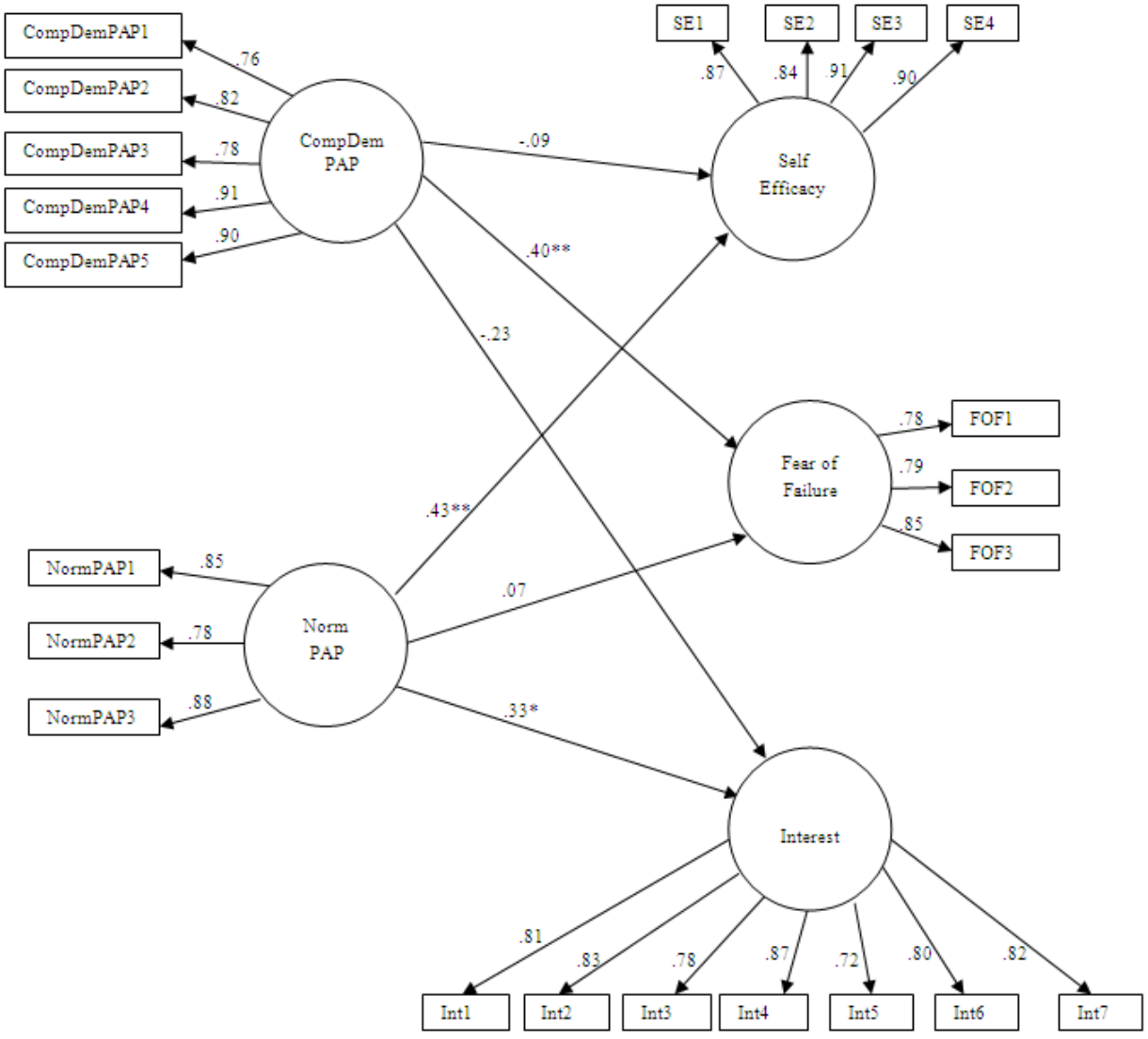
Table 3. Discriminant Validity (intercorrelations) of each Latent Variable

Latent Variable	1	2	3	4	5
1.FOF	**.81**				
2.Interest	-.22	**.81**			
3.SE	-.14	.59	**.88**		
4.Normative PAP	.20	.25	.40	**.84**	
5.Comp.Dem PAP	.42	-.13	.05	.32	**.84**

Note: FOF = Fear of Failure, SE = Self-Efficacy, Normative PAP = Normative Performance Approach, Comp.Dem PAP = Competence Demonstration Performance Approach.

3.2. The Structural Model

The next step in PLS is to analyze the structural model or inner model. Results show that not all beta path coefficients were statistically significant. See Figure 2 for structural model and corresponding path coefficients. Normative PAP goal had a positive influence (β = .43, p< .001) on self-efficacy, a positive influence (β = .33, p< .01) on interest, and no influence on fear of failure. Competence Demonstration PAP goal had a positive influence on fear of failure (β = .40, p< .001), but no significant negative influence on interest and self-efficacy. The model explains 16.7% of the variance in self-efficacy, 18.1% of the variance in fear of failure, and 11.3% of the variance in interest.



Note:.NormPAP = Normative Performance Approach; CompDemPAP = Competence Demonstration Performance Approach; SE = Self-Efficacy; FOF = Fear of Failure; Int = Interest. p< .01. **p< .001

Figure 2. Structural Model Results

4. Discussion and Conclusion

The purpose of the current study was to distinguish between the two sub-types of performance approach goal by testing their unique effects on achievement-related outcomes. Particularly, normative PAP performance approach (goal to outperform others) versus competence demonstration (a performance approach goal to demonstrate competency) were examined. Individuals who hold a normative PAP goal should be more likely to have a heightened sense of their own ability to complete a task. In fact, Grant and Dweck[47] found that individuals who endorsed normative goals tend to have higher levels of perceived ability and are more resistant to admitting failure in face of setbacks. Furthermore, competitive individuals should show more interest in completing academic tasks. As predicted, the data revealed evidence for the positive effects of normative PAP goal on self-efficacy and interest, consistent with previous research targeting normative PAP goal [e.g., 30,49,52,67,68,81].

Why does normative PAP lead to higher levels of interest? Eliott and Moller [36] suggested that to evaluate competence, individuals with normative goals use others and not necessarily the task itself, as the major source of competence information; that competition among peers and friends may sometimes create positive emotions such as joy. Joy, in turn may increase interest in the achievement experience [see 45]. Another plausible explanation is that students with normative PAP goals may devote all their curiosity to achievement-related tasks if they perceive that outcomes could result in assurances of outperforming peers and/or friends. The current data did not examine this possibility, but future research could more closely examine the relationship between the normative PAP goal and interest under conditions where success is certain.

The underlying reason for an effect on self-efficacy of normative PAP also warrants explanation. Normative strivings provide individuals a diagnosis of their own competence against others (Trope, 1983), thereby, one would expect that individuals endorsing a normative PAP goal will utilize best strategies to acquire a more favorable outcome than their peers, if only to preserve a high self-perception. One possible strategy may be to maintain a high self-efficacy. In fact, Grant and Dweck (2003) found that individuals who endorsed a normative PAP goal hold stronger, more positive beliefs about their own performance even in the light of disappointments Possibly, individuals may need to sustain a high perception of performance capability to meet the goal of outperforming others.

Alternatively, normative goals are very strongly linked with concerns about one's own self including one's self-presentation, self-validation, and self-protection [28]. With most of their cognitive and affective resources devoted to preserving their own self-competence, it would be intuitive for individuals with a normative focus to adopt high perceived ability about their own competence in achievement related situations.

Consistent with predictions, the normative PAP goal had no influence on fear of failure, which parallels findings in earlier studies on test anxiety, one indicator of fear of failure [e.g., 33,34,60]. Why does normative PAP not influence fear of failure? Although goals may cause negative emotions [see 71], individuals are capable of controlling threatening emotions by adopting regulatory strategies that may temper any negative influences on achievement outcomes [78-80]. Therefore, it is conceivable that under a normative PAP goal condition, the value of outperforming others may outweigh fear experiences, thus leading to effective regulatory techniques to re-focus on the original goal [See 78]. In fact, there is evidence that the normative PAP goal indeed increase task absorption [6,32,49], indicating that normative goals can create a primary focus on achievement experiences rather than negative emotional processes. Moreover, normative PAP goal may influence positive emotions such as joy, as noted in the preceding section. These positive emotions may directly counteract any negative emotion of fear and its effects [see 43,44, for a review of the undoing hypothesis of positive emotions]. The current data did not examine this possibility, but it is a feasible direction for future researchers to explore.

In contrast to the findings for the normative PAP goal, the data showed that individuals who hold a competence demonstration PAP goal experienced significant levels of fear of failure, consistent with previous findings [62]. Dweck and Elliott [25] suggested that the competence demonstration PAP goal creates a strong focus on demonstrating ability that can lead to helpless responses and negative effect. Research shows that competence demonstration PAP goal can lead to helplessness, specifically after an academic setback [2,15,91], and lower levels of self-worth and intrinsic motivation [47]. Given the negative patterns of behaviors and emotions that may occur under a competence demonstration PAP goal, it is plausible that individuals endorsing a competence demonstration PAP goal may be incapable of using effective emotional regulatory strategies. That is, the fear of not demonstrating high ability may overwhelm the academic experience with little or no emotional control. In fact, fear of failure influences individuals to limit the use of effective strategies that could lead to achievement gains [7].

However, contrary to predictions, the competence demonstration PAP goal did not negatively affect self-efficacy and interest. These findings contradict previous studies that demonstrated negative influences of competence demonstration PAP goal on self-efficacy and interest [2,58]. One feasible explanation for the null results is that overwhelming fear of failure to demonstrate one's competence may nullify negative perceptions of one's own capability to perform the task. Similarly, the cognitive resources and effort devoted to fear of demonstrating incompetency may abrogate focus on the interestingness of the task. It would be worthwhile for future research to explore the effects of the core elements of the performance approach goal on self-efficacy, interest, and fear of failure by

examining the underlying role of emotional regulation.

Particularly noteworthy is that the present study, consistent with results from Grant and Dweck [47] and postulations of Senko et al. [82], confirms the presence of a dichotomous model of the performance approach goal, partitioning normative performance approach goal and competence demonstration performance approach goal into two distinct constructs. This clearly contradicts the traditional unitary framework prevalent in the literature. That is, previous studies examining participants' performance approach goals adopted either a normative performance approach goal [2,47,69] or a competence demonstration performance approach goal [30,32,85,92]. It appears that there are two core elements of the performance approach goal, with distinct processes and consequently divergent outcomes. Future studies could replicate the present study using a similar design to confirm the contrasting consequences of the performance approach goals.

It is important to interpret the findings of the study with caution as the study has several limitations that are worth noting. First, one must acknowledge the relatively small sample size, which may limit generalizations to the larger population of college students. However, the use of partial least squares as an analysis tool that accounts for small sample sizes may have added methodological rigor to the study. Furthermore, the current study was conducted in a naturalistic college setting, which may have tempered the possibility of low external validity. Taken together, situating the study in a natural context and using a statistical tool to account for small sample sizes may add credibility to the findings.

Second, the effective size for each measured outcome was relatively small. According to Chin [16] an effect size above .19 is considered weak. However, the small effect sizes may reflect influences of various other confounding factors other than the measured variables in the current study. For instance, fear of failure is affected by perfectionism [46,57] and generational transmission [39]. Interest is influenced by the nature of the learning situation [51,83,84], and self-efficacy is affected by peer acceptance [13], feedback [10], and self-regulatory strategies [77]. Moreover, the current study was conducted in a real world setting making it difficult to control other factors that could influence outcomes.

Third, performance approach goals are linked to a myriad of other learning and motivational factors. However, the current study only focused on the influence of the performance approach goals on three outcomes: self-efficacy, interest, and fear of failure. Given only three indicators were used to bifurcate the two goals, future studies could do well in distinguishing between the types of the performance approach goal, by examining their distinct influence on other factors (e.g., need for cognition, test anxiety, study strategies). Fourth, students' performance approach goals, self-efficacy, interest, and fear of failure were all measured using self-report scales. The use of self-reports to measure the variables examined in this study could be insufficient to capture reliable and valid measures of these indicators.

Last, students were asked to respond to the questionnaires as they pertain to their courses or school in general. Traditionally, research examining links among achievement goal orientation and other factors used subject-specific, domain-specific, or task-specific contexts. The difference in contexts may have affected the outcome of the present study. That is, when students are required to focus on a specific task, domain, or course, a different pattern of relationship may occur among performance approach goals, self-efficacy, fear of failure, and interest than when they are asked to reflect on these academic indicators globally. Hence, future studies may differentiate between the types of performance approach goals utilizing more specific contexts.

Although current interpretations can be challenged, the findings may have important implications for theory, methodology, and practice. First, the data presented here point to the presence of distinct types of performance approach goals with divergent outcomes. Indeed, achievement goal researchers acknowledge the existence of two distinct types of the performance approach goals with each side drawing from sound underlying theories [29]. However, the field has not agreed on establishing a dichotomous model of the performance approach goal. The current data provide fertile ground from which to begin distinguishing between the two types of performance approach goals. The current study may provide an alternative theoretical consideration of the performance approach goal.

Findings of the current study may also hold methodological significance. First, as previously mentioned, findings regarding the consequences of performance approach goal have been inconsistent [87]. Some have suggested that the manner by which performance approach goals are conceptualized and measured may account for the inconsistencies across studies [28,30,30,89]. The current data appear to confirm the presence of two distinct constructs with differential outcomes. It is possible that the way in which the performance approach goal is defined and measured in research studies may likely affect learning outcomes differently and may account for inconsistencies across studies.

Traditionally, researchers have operationalized performance approach goal differently (normative PAP vs. competence demonstration PAP). Although, researchers have acknowledged the presence of different elements of the performance approach goals [47,89], investigations into the antecedents and consequences of performance approach goals have utilized one type of the performance approach goal. However, recently, Grant and Dweck [47] examined the consequences of the types of the performance approach goal and found different results for each goal. The current study adds to their work to provide evidence of distinct performance approach goals with differing consequences. The findings challenge the current methodological approach to studying the performance approach goal. It may be beneficial for researchers examining performance goal

orientations to adopt a dichotomous framework instead of a unitary one.

Last, the study may also be practically significant. Traditionally, mastery goals are considered the most adaptive [see 58,88]. Given the current findings, it may be that normative PAP goal is just as adaptive as mastery goals for some outcomes. Thereby, classroom teachers could create a learning environment that emphasizes both mastery and normative PAP goal adoption, while de-emphasizing competence demonstration PAP goal.

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