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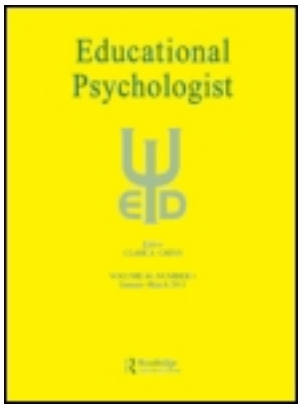

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The Strength of the Relation Between Performance-Approach and Performance-Avoidance Goal Orientations: Theoretical, Methodological, and Instructional Implications

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In current research on achievement goal theory, most researchers differentiate between performance-approach and performance-avoidance goal orientations. Evidence from prior research and from several previously published data sets is used to highlight that the correlation is often rather large, with a number of studies reporting correlations above .50. The large magnitude of this correlation raises questions and warrants further investigation. The size of the correlation also varies substantially across studies; thus, several potential moderators were considered. Minimal evidence for moderation was found, with little variability in relations as a function of fear of failure, culture, and specificity of the goal assessment. There was some evidence of variability in the correlation based on age, perceived competence, and assessment instrument. The article concludes by highlighting theoretical, methodological, and instructional questions that arise as a result of the large correlation and making recommendations and guidance for research, instructional practice, and theory advancement.

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Achievement goal theory has emerged as a prominent perspective for understanding the reasons why individuals engage in achievement-related activities and tasks (Weiner, 1990). Building on empirical and theoretical distinctions made by Elliot and Harackiewicz in the mid- to late 1990s (Elliot, 1997, 1999; Elliot & Church, 1997; Elliot & Harackiewicz, 1996; see also Middleton & Midgley, 1997; E. Skaalvik, 1997), goal theorists have largely utilized a trichotomous model of achievement goal orientations, which differentiates among mastery, performance-approach, and performance-avoidance goal orientations. More recently, a number of goal theorists have proposed a fourth goal orientation—mastery-avoidance. These four goal orientations have been described as theoretically distinct (Elliot, 1999; Elliot & Conroy, 2005; Moller & Elliot, 2006; Pintrich, 2000a, 2000b), and this distinction is also supported by factor analyses (e.g., Cury, Elliot, Da Fonseca, & Moller, 2006; Elliot & McGregor, 2001; Elliot & Murayama, 2008; Zusho, Karabenick, Bonney, & Sims, 2007).

Although there is empirical and theoretical evidence for the differentiation among goal orientations, the correlation between performance-approach and performance-avoidance goal orientations is unusually large across many studies. Although the magnitude and direction of this correlation vary substantially, correlations over .50 are commonly reported (e.g., Middleton & Midgley, 1997; Pastor, Barron, Miller, & Davis, 2007; Pekrun, Elliot, & Maier, 2006, 2009; Pugh, Linnenbrink-Garcia, Koskey, Stewart, & Manzey, 2010; Van Yperen, 2006) with some studies reporting the correlation as large as .82 (Kaplan, Lichtinger, & Gorodetsky, 2009; Ross, Shannon, Salisbury-Glennon & Guarino, 2002). Indeed, in two recent meta-analyses, the correlation between performance-approach and -avoidance goal orientations was higher than any of the other goal orientation pairs, even those sharing a similar dimension ($\hat{r} = .40$, Hulleman, Schrager, Bodmann, & Harackiewicz, 2010; $\rho = .78$ (state), $\rho = .40$ (trait), Payne, Youngcourt, & Beaubien, 2007). As such, we feel it is imperative to pause and consider what this large correlation between performance-approach and performance-avoidance goal orientations means at theoretical, methodological, and practical levels. We do not discuss the correlation for the other goal pairs sharing a common dimension (e.g., mastery-approach and mastery-avoidance; mastery-approach and performance-approach) in this article because the strength of the correlation among these variables does not consistently reach the magnitude often observed for performance-approach and performance-avoidance goal orientations.

To be clear, it is not the mere presence of a positive correlation between performance-approach and performance-avoidance goal orientations that raises questions; rather, it is the large magnitude of this correlation that suggests the need for further investigation. Indeed, Elliot and Murayama (2008) noted that achievement goals "are expected to be positively correlated (when they share a dimension) or uncorrelated (when they do not share a common dimension)" (p. 615). Other goal orientations sharing dimensions are typically weakly to moderately correlated (Hulleman et al., 2010; Payne et al., 2007). Moreover, in his presentation of the hierarchical model for achievement goal orientations, Elliot (1999) explicitly stated that individuals can simultaneously pursue both approach and avoidance goals.

However, the large magnitude of the correlation raises several important issues for consideration. From a theoretical standpoint, the large correlation suggests the need to reflect upon the conceptual overlap between these constructs. Methodologically, these two goal orientations are often included as predictors in the same analysis, and the use of two highly correlated predictor variables may make the interpretation of findings more difficult. Finally, the large correlation should also be considered at the classroom level to better understand when and how classroom contexts lead to the endorsement of performance-approach and/or performance-avoidance goal orientations.

Accordingly, the purpose of the current article is to highlight and discuss the theoretical, methodological, and instructional issues that may result from the existence of an unusually large correlation between performance-approach and performance-avoidance goal orientations and to identify when and why the high correlation emerges. To provide grounding for our later discussion, we begin by presenting a brief overview of the theoretical and empirical basis for the distinction between performance-approach and -avoidance goal orientations focusing on antecedents and consequences of both goal orientations as well as the underlying factor structure. Next, we provide an overview of the empirical literature and a reanalysis of several published data sets to illustrate the range of the correlation and to investigate potential moderators of the correlation. Finally, we conclude by reflecting upon the theoretical, methodological, and instructional questions raised by the large correlation and make specific recommendations for both researchers and educators.

ACHIEVEMENT GOAL THEORY

According to achievement goal theory, there are two main reasons why individuals engage in achievement-related activities (Ames, 1992b; Dweck & Leggett, 1988). Individuals may focus on developing their competence, with an emphasis on improvement, learning, and understanding (*mastery goal orientation*). A second reason or purpose for engagement is to demonstrate or validate competence, often in comparison to others (*performance goal orientation*). As an extension of this initial work, goal theorists have further differentiated between approach and avoidance goals (Elliot, 1997, 1999; Middleton & Midgley, 1997; E. Skaalvik, 1997). In this way, an individual might focus on demonstrating or validating

competence (performance-approach) or avoiding appearing incompetent (performance-avoidance). This approach–avoidance distinction has also been extended to mastery goals, such that one can approach the goal to develop competence (mastery-approach) or avoid not developing competence (mastery-avoidance; Elliot, 1999; Pintrich, 2000a, 2000b).

Antecedents of Performance-Approach and Performance-Avoidance Goal Orientations

Researchers have proposed a variety of internal and external sources of goal orientations including need for achievement, fear of failure, perceived competence, theories of intelligence, and classroom/school goal structures (Ames, 1992a, b; Dweck & Leggett, 1988; Elliot, 1999, 2006). These varying antecedents provide one rationale for justifying the distinction between performance-approach and performance-avoidance goal orientations, as there are both distinct (need for achievement, perceived competence) and shared (fear of failure, theories of intelligence, performance goal structures) antecedents of these two performance goals.

With respect to internal antecedents, Elliot (1997, 1999, 2006) proposed that need for achievement underlies performance-approach goals by orienting individuals toward challenge and success, whereas fear of failure orients individuals toward the possibility of failure leading to performance-approach and/or performance-avoidance goal endorsement. Approach and avoidance goals can also be shaped by perceived competence such that high perceived competence orients individuals toward success and performance-approach goal adoption, whereas low perceived competence orients individuals toward avoiding failure and endorsement of performance-avoidance goals. There is strong empirical support for this hierarchical framework (Conroy, Elliot, & Hofer, 2003; Cury et al., 2006; Elliot & Church, 1997; Elliot & McGregor, 1999, 2001; Neff, Hsieh, & Dejitterat, 2005; Thrash & Elliot, 2002; Zusho, Pintrich, & Cortina, 2005), thus supporting both the overlap and differentiation between the two forms of performance goals.

In another conceptualization of the internal antecedents of achievement goals, Dweck and her colleagues (Dweck, 1986, 1999; Dweck & Leggett, 1988) identified two beliefs people hold regarding the nature of intelligence that predict goal adoption, namely, incremental and entity beliefs. Under an incremental theory, intelligence is viewed as malleable, whereas under an entity theory, intelligence is believed to be limited and fixed. Incremental views of intelligence are typically associated with learning (or mastery goals), whereas entity views of intelligence are associated with both performance-approach and performance-avoidance goal endorsement (Cury et al., 2006), suggesting shared internal antecedents.

Contextual factors, such as the classroom or school goal structure,[1] also contribute to the endorsement of various personal goal orientations (Ames, 1992b; Maehr & Midgley, 1991; Meece, Anderman, & Anderman, 2006). However, the majority of studies on classroom or school goal structure, even those conducted after the introduction of the approach/avoidance dichotomy, have assessed classroom and school goal structures without differentiating between approach and avoidance dimensions (Ames & Archer, 1988; Gutman, 2006; Patrick, Anderman, Ryan, Edelin, & Midgley, 2001; Roeser, Midgley, & Urdan, 1996; Ryan, Gheen, & Midgley, 1998; Ryan & Patrick, 2001; Turner et al., 2002; Urdan & Midgley, 2003; Urdan, Midgley, & Anderman, 1998; Urdan & Shoenfelder, 2006). These studies typically find that perceived performance classroom goal structures predict both performance-approach and performance-avoidance personal goal orientations (Midgley & Urdan, 2001; Urdan, 2004), suggesting that external antecedents of performance goal orientations may not be distinct.

More recently, several researchers have attempted to differentiate between performance-approach and performance-avoidance classroom goal structures (Kaplan, Gheen, & Midgley, 2002; Karabenick, 2004; Murayama & Elliot, 2009; Wolters, 2004; Zusho et al., 2007). However, the results from these efforts suggest that students are not able to differentiate between these two types of classroom goal structures. Three independent studies found that junior and senior high school students' perceptions of performance-avoidance goal structures did not significantly vary across classes (Kaplan et al., 2002; Murayama & Elliot, 2009) or could not be measured reliably (Wolters, 2004). Although Karabenick (2004) identified between-class variation for performance-avoidance goal structures among undergraduates, it was highly correlated with perceived performance-approach goal structures ($r = .91$), which raises concerns about students' ability to differentiate between them at the classroom level. Even if general goal structures cannot be readily differentiated into approach and avoidance dimensions, specific features of the learning environment, such as task difficulty and evaluation structure, may indirectly influence goal endorsement by shifting students' perceptions of competence (Linnenbrink & Pintrich, 2001). In line with this idea, Church, Elliot, and Gable (2001) reported that students who perceived evaluation as harsh were more likely to endorse performance-avoidance goals. Taken together, research on both internal and external antecedents suggests that individual differences, rather than goal structures, may orient learners more to approach versus avoidance goal orientations. The specific complex and

[1] In our review of this work, we focus on classroom and school goal structures rather than experimental laboratory studies, as the majority of the laboratory studies either assign students goals or attempt to activate certain goal orientation "schemas" and thus do not provide clear evidence regarding how the learning context shapes goal orientations (Linnenbrink, 2004).

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multiplicative ways in which these internal antecedents combine, however, has not been thoroughly examined.

Consequences of Performance-Approach Versus Performance-Avoidance Goal Orientations

Another approach to distinguishing between performance-approach and performance-avoidance goal orientations is to determine if they differentially predict a variety of critical outcomes. Empirical research indicates that performance-avoidance goals are detrimental with respect to many important academic outcomes (Senko, Hulleman, & Harackiewicz, 2011). They are consistently linked with lower intrinsic motivation, academic self-efficacy, behavioral and cognitive engagement, and achievement (e.g., Church et al., 2001; Elliot & McGregor, 1999; Middleton & Midgley, 1997; Pajares, Britner, & Valiante, 2000; Pekrun et al., 2009; E. Skaalvik, 1997) and heightened test anxiety, avoidance of help seeking, and self-handicapping (e.g., Elliot & McGregor, 2001; Middleton & Midgley, 1997; Midgley & Urdan, 2001; Pekrun et al., 2006, 2009; Shih, 2005; E. Skaalvik, 1997; S. Skaalvik & Skaalvik, 2005). Recent meta-analyses further support this observed pattern; performance-avoidance goal orientations were negatively related to performance ($\hat{r} = -.13$) and interest ($\hat{r} = -.07$) (Hulleman et al., 2011)[2] and associated with heightened[3] negative affect ($r = -.18$) and anxiety ($r = -.32$; Huang, 2011).

In contrast, performance-approach goal orientations are typically either positively related or unrelated to a number of beneficial outcomes. Prior research supports the benefits of performance-approach goals for supporting behavioral and cognitive engagement, interest, and achievement (e.g., Elliot & Church, 1997; Elliot & McGregor, 1999; Elliot, McGregor, & Gable, 1999; Harackiewicz, Barron, & Elliot, 1998; McGregor & Elliott, 2002; Senko & Harackiewicz, 2005; Shih, 2005; Skaalvik, 1997; Wolters, Yu, & Pintrich, 1996). Indeed, recent meta-analyses found that performance-approach goals were positively related to both achievement ($\hat{r} = .06$) and interest ($r = .07$ in Huang, 2011; $\hat{r} = .21$ in Hulleman et al., 2010; see Footnote 2). However, performance-approach goals have also been linked to maladaptive outcomes such as avoidance or perceived threat of help seeking (Karabenick, 2004; S. Skaalvik & Skaalvik, 2005), test anxiety (Linnenbrink, 2005; E. Skaalvik, 1997), and cheating (Tas & Tekkaya, 2010). The negative relation for test anxiety was also observed in Huang's (2011) recent meta-analysis ($r = -.12$; see Footnote 3). Thus, there is clear evidence that performance-approach and performance-avoidance goals differentially predict a number of key academic outcomes, suggesting that there are specialized effects, but there is also some overlap with outcomes involving avoidance behaviors and anxiety.

Underlying Factor Structure

In addition to showing that there are divergent antecedents and consequences for performance-approach and performance-avoidance goal orientations, the existence of separate factor structures would further substantiate the claim that these goals are empirically distinct (Murayama, Elliot, & Yamagata, 2011). This evidence is important to consider as the large correlation may make it difficult to differentiate between two unique factors. In addition, if the items measuring performance-approach and -avoidance goals do not separate into two factors, the large correlation may suggest more serious theoretical and methodological issues (Easter, Ciani, & Summers, 2008). We consider this possibility by examining prior research using both exploratory and confirmatory factor analyses.

When goal scales were initially developed, exploratory factor analyses (EFAs) showed that performance-approach and performance-avoidance goal orientations represented unique factors (Elliot & Church, 1997; Elliot & McGregor, 2001; Middleton & Midgley, 1997). However, these unique factors may have emerged in some of these early studies as a function of scale development because items were often dropped if they showed high cross-loading. Indeed, several more recent EFAs suggest that performance-approach and -avoidance goal orientations often load on a single factor (Linnenbrink-Garcia, Middleton, Ciani, Easter, & O'Keefe, 2011; Zusho et al., 2011). Unfortunately, very few studies report results from EFAs, making it difficult to determine the scope of the problem. Yet, given the current questions about the large correlation, EFAs provide important information about whether two distinct goal orientations emerge when the underlying factor structure has not been specified and are critical for identifying cross-loadings between factors (Murayama et al., 2011).

In an analysis of five data sets collected by several independent laboratories assessing mastery (approach),

[2]Hulleman et al. (2010) found that the strength of the correlation between achievement and performance-approach goals varied as a function of scale type (AGQ: $\hat{r} = .14$, Patterns of Adaptive Learning Survey [PALS]: $\hat{r} = -.01$; other published: $\hat{r} = .01$; custom: $\hat{r} = -.02$) and whether the majority of the scale items assessed normative ($\hat{r} = .14$), evaluative ($\hat{r} = -.14$), performance no-goal ($\hat{r} = .01$), or no clear majority ($\hat{r} = .03$). In addition, the correlation between performance-avoidance goals and achievement varied based on scale type ($\hat{r} = -.20$, PALS: $\hat{r} = -.13$; other published: $\hat{r} = -.08$; custom: $\hat{r} = -.09$); there were no significantly differences based on the coding of the goal items as normative, evaluative, and so on. For interest and achievement goal type, there were no significant moderators for performance-approach goals. For performance-avoidance goal orientations, results varied based on scale type (AGQ: $\hat{r} = -.20$, PALS: $\hat{r} = -.05$; other published: $\hat{r} = -.11$; custom: $\hat{r} = -.02$). The correlation between performance-avoidance goals and interest decreased when all of the items were coded as assessing performance-avoidance ($\hat{r} = .03$) in comparison to no items assessing performance-avoidance directly ($\hat{r} = -.13$).

[3]Huang (2011) reverse-scored indicators of negative affect such that a negative correlation indicates a positive association between the achievement goal and negative affect.

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performance-approach, and performance-avoidance goal orientations, Linnenbrink-Garcia et al. (2011) used principal axis factoring (PAF) with oblimin rotation and found that the pattern coefficients for the performance-approach and -avoidance items mapped onto a single performance goal factor for four independent samples; EFA on a fifth sample was in-line with the trichotomous model. Similarly, Zusho et al.'s (2011) EFA with PAF largely supported a two- rather than three-factor model; however, when they used maximum likelihood (ML) estimation—an inferential method that provides goodness of fit indices and accounts for the analysis of a sample rather than a population matrix—the results supported a three-factor solution. Murayama et al. (2011) also found evidence for a three-factor structure using ML estimation. It is important that several other studies have reported EFAs that support the trichotomous model (e.g., Leondari & Gialamas, 2002; Pajares et al., 2000). The inconsistency in the identification of distinct performance-approach and -avoidance factors when EFA is employed suggests that the differentiation between performance-approach and -avoidance goals is not fully supported by the EFA findings and warrants further investigation.

In contrast, across studies using a variety of assessment instruments, confirmatory factor analyses (CFAs) provide clearer support for distinguishing between approach and avoidance goals (e.g., Day, Radosevich, & Chasteen, 2003; Elliot & McGregor, 2001; Elliot & Murayama, 2008; Finney, Pieper, & Barron, 2004; Middleton & Midgley, 1997; Midgley et al., 1998; Muis, Winne, & Edwards, 2009; Murayama et al., 2011; Ross et al., 2002; M. Smith, Duda, Allen, & Hall, 2002; Wu & Chen, 2010; Zusho et al., 2007). In our own prior work described previously (Linnenbrink-Garcia et al., 2011; Zusho et al., 2011), CFAs supported the trichotomous model; thus, even when EFAs with PAF estimation did not provide support, CFAs using these same data supported the approach–avoidance distinction. This further highlights the importance of considering both EFAs and CFAs, as the results may vary between the two. Moreover, a number of studies have directly compared the 2 × 2 model to other competing models collapsing across the approach-avoidance or mastery-performance dimensions. These analyses suggest that the 2 × 2 model fits significantly better than other alternatives (Elliot & Church, 2001; Elliot & Murayama, 2008; Finney et al., 2004; Muis et al., 2009; Zusho et al., 2007; for an exception, see Wu & Chen, 2010). One reason that the CFAs provide adequate fit is that these analyses can accommodate a large correlation. Indeed, Ross et al. (2002) found a significant increase in model fit when they allowed the goal orientations to correlate.

Summary

Overall, there is substantial evidence suggesting that the differentiation of performance-approach and performance-avoidance goal orientations is useful and theoretically meaningful. Research on unique antecedents (perceived competence, need for achievement) and academic consequences (intrinsic motivation, engagement, achievement) coupled with CFAs showing distinct underlying factor structures all support this separation. This distinction is less clear when based on the EFAs, however, suggesting the importance of a cautious approach in future research. Nevertheless, we cannot simply ignore the large correlation that has emerged in a number of studies. We must also account for the fact that performance-approach and -avoidance goals share some important antecedents (fear of failure and entity beliefs) and consequences (avoidance behaviors, test anxiety) and are not readily differentiated at the classroom level. Although there have been recent calls to attend to the large correlation (e.g., Law, Elliot, & Murayama, 2012; Murayama et al., 2011), we lack a clear description of the range of the correlation and a careful consideration of how underlying personal or contextual factors may explain the variability in its magnitude. Thus, our goal in this second section of the article is to provide an illustrative overview highlighting the range of the correlation observed in the extant literature and to consider several potential moderators to explain its heterogeneity.

CORRELATION BETWEEN PERFORMANCE-APPROACH AND PERFORMANCE-AVOIDANCE GOAL ORIENTATIONS

Before turning to our descriptive review, we highlight several findings from Hulleman and his colleagues' (2010) recent meta-analysis reviewing 147 studies conducted prior to 2007 that reported the correlation between performance-approach and performance-avoidance goal orientations across work, social, sport, and academic domains. Synthesizing across these four domains, Hulleman et al. reported an average correlation between performance-approach and -avoidance goal orientations of .40 and found statistically significant heterogeneity among the correlations. Their moderator analysis suggested that the strength varied based on domain, with lower correlations in the academic ($\hat{r} = .39$) than the social ($\hat{r} = .68$) domain. The correlation was also stronger in unpublished ($\hat{r} = .49$) than in published ($\hat{r} = .35$) studies. There were no significant differences in the correlation's size based on gender, grade in school, ethnicity, and nationality. As we discuss in greater detail later in this section, the correlation also varied as a function of assessment. It is noteworthy that even though the correlation observed between performance-approach and -avoidance goal orientations was larger than that observed among the other goal pairs, Hulleman et al. did not raise or discuss any implications of this large correlation for the field to consider, as this was not the primary focus of their article.

To better understand the correlation, we begin by describing the range of the correlation, focusing on those studies conducted in the academic domain. Our purpose here is not to provide a complete review of all studies but rather to

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highlight the range in the correlation. In doing so, we draw from published studies in peer-reviewed journals included in Hulleman et al. (2010) as well as several more recent studies that utilized newly revised scales (AGQ-R) or were selected to specifically address the proposed moderators. We are not attempting to provide another meta-analysis; rather, we provide a more detailed description of the heterogeneity in the correlation and then propose several additional moderators that might also explain these findings. To provide consistency in our interpretation of these correlations, we followed Cohen's (1992) guidelines in which correlations below .10 are considered trivial, from .10 to .30 are small, from .30 to .50 are moderate, and above .50 are large.

At one end of the spectrum, there are a handful of studies with either a small negative correlation (Davis, Mero, & Goodman, 2007; Sideridis, 2005a) or a trivial, positive correlation (F. K. Lee, Sheldon, & Turban, 2003; Senko & Harackiewicz, 2005; VandeWalle, Cron, & Slocum, 2001). There are also a number of studies in which the correlation would still be considered small, but positive (e.g., Church et al., 2001; Cron, Slocum, VandeWalle, & Fu, 2005; Cury et al., 2006; Elliot & McGregor, 2001; Elliot et al., 1999; Fortunato & Goldblatt, 2006; Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008; Horvath, Herleman, & McKie, 2006; Leondari & Gialamas, 2002; Niemivirta, 2002; Radosevich, Vaidyanathan, Yeo, & Radosevich, 2004; Schmidt & Ford, 2003; Sideridis, 2005a, 2006; E. Skaalvik, 1997; Thrash & Elliot, 2002).

For a majority of the studies we reviewed, the correlation was moderate in size, falling between $r = .30$ and .50 (Bong, 2009; Church et al., 2001; Dai, 2000; Day et al., 2003; Elliot & Church, 1997; Elliot & McGregor, 1999, 2001; Elliot et al., 1999; Heimbeck, Frese, Sonnentag, & Keith, 2003; Kaplan et al., 2002; Kozlowski & Bell, 2006; Kumar & Jagacinski, 2006; McGregor & Elliot, 2002; Pajares et al., 2000; Pajares & Cheong, 2003; Pastor et al., 2007; Seegers, van Putten, & Vermeer, 2004; Sideridis, 2005b; L. Smith, Sinclair, & Chapman, 2002; M. Smith et al. 2002; Tanaka, Murakami, Okuno, & Yamauchi, 2002; Tanaka, Okuno, & Yamauchi, 2002; Tanaka, Takehara, & Yamauchi, 2006; Tuckey, Brewer, & Williamson, 2002; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2011; VandeWalle & Cummings, 1997; Zusho, Pintrich, & Cortina, 2005). However, there were quite a few studies with correlations above .50 (Bong, 2005, 2009; Elliot & Murayama, 2008; Finney et al., 2004; Karabenick, 2004; Levy-Tossman, Kaplan, & Assor, 2007; Luo, Paris, Hogan, & Luo, 2011; Middleton, Kaplan, & Midgley, 2004; Middleton & Midgley, 1997; Midgley & Urdan, 2001; Neff et al., 2005; Pajares, 2001; Pajares & Cheong, 2003; Pekrun et al., 2006, 2009; Pugh et al., 2010; Ross et al., 2002; Ryan, Patrick, & Shim, 2005; Shih, 2005; Shim & Ryan, 2005; Sideridis, 2005b, 2006; M. Smith et al., 2002; Tanaka & Yamauchi, 2001; Van Yperen, 2006; Zusho et al., 2005) and a few studies in which correlations were even above .80 (e.g., Kaplan et al., 2009; Ross et al., 2002).

One possible explanation for the variation in the correlation is that some studies measured goal orientations more reliably than others. However, we found no evidence that the strength of the correlation varied based on reliability. Cronbach's alphas generally ranged from .70 to .90 across studies, with a few reliabilities falling between .60 and .70. Specifically, the average reliability for performance-approach goals was similar for studies with negative correlations ($M_\alpha = .83$) and positive correlations ranging in size from trivial ($M_\alpha = .84$), small ($M_\alpha = .85$), moderate ($M_\alpha = .81$), and large ($M_\alpha = .84$). Average reliabilities for performance-avoidance goals were somewhat lower but still similar among studies with negative correlations ($M_\alpha = .70$) as well as positive trivial ($M_\alpha = .78$), small ($M_\alpha = .81$), moderate ($M_\alpha = .80$), and large ($M_\alpha = .80$) correlations.

In summary, there is clear empirical evidence that performance-approach and -avoidance goal orientations are related and that, in many studies, the strength of this relation is quite large. Moreover, there is substantial heterogeneity in the correlation that cannot be readily accounted for by variations in the reliability of the measures. Accordingly, we discuss several possible moderators including fear of failure, perceived competence, developmental level, culture, specificity of goal assessment, and assessment instrument. To examine these potential moderators, we draw from Hulleman et al.'s (2010) analysis, our own review of the literature, and a reanalysis of previously published data (see Table 1 for a description of the data sets[4]).

Fear of Failure

Because fear of failure undergirds both performance-approach and performance-avoidance goal orientations, it is possible that performance goals are more strongly correlated among individuals high in fear of failure. Within the extant literature, we are not aware of research reporting correlations between performance goals as a function of varying levels of fear of failure. Thus, we drew from previously published data to address this question. One study (Data Set 4) assessed fear of failure directly; we also followed the tradition of Atkinson (1964) and Elliot and McGregor (1999) and used test anxiety as a proxy for fear of failure for Data Sets 1 and 4. For all indicators, we created three groups of students: low (> 1 *SD* below the mean), medium (within 1 *SD* of the mean), and high (> 1 *SD* above the mean). As shown in Table 2, the correlations between performance-approach and -avoidance goal orientations were large, regardless of the level of test anxiety and fear of failure, and did not significantly vary from each other. Thus contrary to our hypothesis, the strength of the performance-approach/performance-avoidance correlation did not vary as a function of fear of failure.

[4]These data sets are not meant to be representative of all studies, but as a group they are similar to the samples used in much of the extant literature.

TABLE 1
Descriptors of Previously Published Data Sets Reanalyzed for Moderator Analyses

Data Set	*Correlation Between PAP and PAV*	*Sample Size*[a]	*Student Descriptors*	*Subject Descriptors*	*School Location*	*Scale Used*	*Data Source*
1	.57*	515	7th grade	Math	Upper Midwest	PALS (original); Midgley et al., 2000	Midgley, 2002; Middleton, Kaplan, & Midgley, 2004
2	.78*	166	High school	Biology	Upper Midwest	PALS (revised); Midgley et al., 2000	Pugh, Linnenbrink-Garcia, Koskey, Stewart, & Manzey, 2010
3	.84*	138	Undergraduate	Educational Psychology	Midwest	AGQ (revised); Cury et al., 2006	Ciani, Sheldon, Hilpert, & Easter, 2011
4	.57*	920	Undergraduate	Chemistry	Upper Midwest	Adapted from PALS (original); Midgley et al., 2000	Zusho, Pintrich, & Coppola, 2003

Note. PAP = Performance-Approach; PAV = Performance-Avoidance.
[a]The sample size reported here may vary from the published article as the sample size reported in both sources in the analytic sample.
*$p < .001$.

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Perceived Competence

It is also plausible that the correlation varies based on perceived competence. Both Middleton et al. (2004) and Law et al. (2012) proposed that individuals with low academic self-efficacy who endorsed performance-approach goals would be more likely to also endorse performance-avoidance goal orientations over time. This hypothesis suggests that, at least over time, the correlation between performance-approach and -avoidance goal orientations would be larger for individuals with low perceived competence. Although they did not provide data speaking to this issue, Murayama et al. (2011) also proposed that perceived competence might moderate the strength of the correlation, suggesting that individuals with high perceived competence would be less likely to focus on both performance-approach and -avoidance goals as they would focus more on success, whereas those with low perceived competence might find it necessary to focus on both approaching success and avoiding failure, resulting in a larger correlation for individuals with low perceived competence.

Surprisingly, Middleton et al. (2004) found the opposite pattern; middle school students who endorsed performance-approach goal orientations and had *high* self-efficacy were more likely to endorse performance-avoidance goal orientations during the following academic year. They suggested that students who are focused on demonstrating their ability and also hold high-ability perceptions may—at least in certain situations such as a challenging, new classroom environment or the experience of lower levels of achievement—begin to also work toward avoiding appearing incompetent as a self-protective mechanism. In this way, individuals with high perceived competence might be more likely to endorse both forms of performance goals. This supports the hypothesis that the strength of the performance-approach/performance-avoidance correlation varies based on perceived competence; however, whether the correlation is stronger for individuals high or low in perceived competence is not entirely clear.

In contrast, Law et al. (2012) provided evidence from four empirical studies conducted with college students that the strength of the correlation varied as a function of perceived competence. Using median splits of college students' self-reported perceived competence, Law et al. observed a statistically significant lower correlation between performance-approach and performance-avoidance goals when perceived competence was high ($r = .62$) rather than low ($r = .80$; $z = 2.78$, $p < .01$). They found similar results when they assessed the correlation across a variety of domains; perceived competence was negatively related to the correlation between performance-approach and -avoidance goals ($r = -.21$, $p < .05$). Two experimental studies in which perceived competence was manipulated through task difficulty further supported their claim that the correlation was smaller for easy tasks (high perceived competence, $r_{study\ 3} = .60$, $r_{study\ 4} = -.01$) relative to moderate tasks ($r_{study\ 3} = .94$, $r_{study\ 4} = .84$) or very hard tasks (low perceived competence, $r_{study\ 3} = .92$, $r_{study\ 4} = .86$).

Turning again to a reanalysis of our own data, we created three groups of students (low, medium, and high) using the same method described for fear of failure. As shown in

TABLE 2
Potential Moderators of Performance-Approach/Performance-Avoidance Correlation in Previously Published Data

	Data Set 1			*Data Set 2*			*Data Set 3*			*Data Set 4*		
Moderator	r	*95% CI*	n	r	*95% CI*	n	r	*95% CI*	n	r	*95% CI*	n
Test anxiety[a]				NA			NA					
Low[b]	$.53_a$*	[.36, .67]	83							$.52_a$*	[.40, .62]	168
Medium	$.54_a$*	[.46, .61]	328							$.52_a$*	[.46, .58]	615
High	$.59_a$*	[.44, .71]	95							$.60_a$*	[.48, .70]	143
Fear of failure	NA			NA			NA					
Low										$.43_a$*	[.27, .57]	111
Medium										$.57_a$*	[.51, .62]	570
High										$.54_a$*	[.40, .65]	124
Perceived competence												
Low	$.55_a$*	[.39, .68]	94	$.62_a$*	[.36, .79]	35	$.87_a$*	[.72, .94]	24	$.52_a$*	[.39, .63]	149
Medium	$.59_a$*	[.51, .66]	293	$.77_a$*	[.68, .84]	106	$.84_a$*	[.77, .89]	89	$.63_a$*	[.58, .68]	624
High	$.58_a$*	[.45, .69]	120	$.88_a$*	[.74, .95]	25	$.85_a$*	[.69, .93]	25	$.55_a$*	[.43, .65]	147

Note. For each moderator within each data set, correlations sharing common subscripts were not significantly different from each other; significant differences between pairs of correlations were calculated using Fisher's *r* to *Z* transformation; *p* value cutoffs were adjusted using the Bonferroni adjustment for multiple comparisons. CI = confidence interval.
[a]For Data Set 4, test anxiety was assessed in terms of general anxiety regarding studying for the course. [b]Low indicates greater than 1 *SD* below the mean; medium indicates within 1 *SD* of the mean; high indicates 1 *SD* above the mean calculated separately for each moderator variable for each data set.
*$p < .001$.

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Table 2, there were no statistically significant differences among the correlations across all four data sets; all the observed correlations were large ($r > .50$) for low, medium, and high levels of perceived competence. The difference between low and high perceived competence for our high school data set (2) approached statistical significance ($z = -2.35$, $p = .019$; Bonferroni cutoff for significance was $p < .017$), which was consistent with Middleton et al.'s (2004) findings. However, we did not observe it in our other data sets and feel it is more appropriate to use the conservative Bonferroni adjustment to determine significance level given the multiple comparisons we conducted.

Taken together, the empirical evidence is very mixed regarding the role of perceived competence in moderating the correlation. These data suggest that the correlation is highest when perceived competence is high (Middleton et al., 2004), low (Law et al., 2012), or that there is no difference based on perceived competence (see Table 2). Given these discrepant findings, future research should further investigate this issue.

Developmental Level

A third possibility is that the correlation varies with age. Younger children may have more difficulty differentiating between items assessing approach and avoidance components, resulting in a higher correlation. Notably, Hulleman et al. (2010) found no evidence of schooling level as a moderator; moreover the reliability of the constructs, which could contribute to developmental differences, did not vary based on schooling level. Although the studies reviewed by Hulleman et al. confounded age and assessment instrument such that the PALS (Midgley et al., 2000) was employed more frequently with younger students, the larger performance goal correlation observed for PALS ($\hat{r} = .49$) would make it easier to find developmental differences not more difficult.[5]

Meta-analytic techniques are useful for synthesizing data; however, individual studies that directly compare correlations based on development also provide important evidence. Thus, we now turn to three studies directly comparing the correlation across specific age groups. To test for differences, we calculated whether the correlations varied significantly among the various age groups and report 95% confidence intervals (CIs).[6] In one study (Pajares & Cheong, 2003), there were no statistically significant differences among upper elementary school ($r = .52$, 95% CI [.433, .597]), middle school ($r = .48$, [.410, .544]), and high school ($r = .46$, [.386, .528]) students. However, in Bong's (2009) study, the correlation among children in lower elementary school ($r = .58$, [.484, .662]) was significantly larger than that observed for children in middle elementary school ($r = .36$, [.235, .473]), upper elementary school ($r = .34$, [.220, .450]), or middle school ($r = .41$, [.335, .480]), who did not vary from each other. CFA analyses also indicated that lower elementary-aged children had trouble differentiating performance-approach and performance-avoidance goal orientations. Finally, the correlations from Ross et al. (2002) also significantly varied between upper elementary school ($r = .82$, [.784, .850]) and college ($r = .65$, [.558, .726]) students. Notably, across these studies the reliabilities were largely similar suggesting that

[5]We thank an anonymous reviewer for bringing this important point to our attention.

[6]Significant levels between pairs of correlations were calculated using Fisher's *r* to *Z* transformation; *p* value cutoffs were adjusted using the Bonferroni adjustment.

the observed differences were not simply a function of variability in the reliability of the scales.

One possible reason for the differences between the Hulleman et al. (2010) meta-analysis and Bong's (2009) empirical findings is that the studies reviewed by Hulleman and his colleagues typically examined upper elementary-aged children; very few studies apart from Bong (2009) have been conducted with children below fourth grade. This explanation, however, does not account for Ross et al.'s (2002) findings. We must also consider the possibility that any observed age differences are a function of differences in the classroom context, rather than differences in development. Given the general meta-analysis findings, there is however relatively little evidence that age (or schooling level) explains the range of the correlations in most of the extant literature.

Culture

In addition to developmental differences, it is also reasonable to propose that students from different cultures may differentially interpret the items. Such a claim is largely based on the assumption that any cultural differences found in the adoption of approach and/or avoidance goals can be attributed to differences in how individuals view the self. Specifically, individuals with an interdependent view of self (e.g., Asians) are more prevention focused, whereas individuals with an independent view of self (e.g., Westerners) are more promotion focused (A. Y. Lee, Aaker, & Gardner, 2000). The tendency to focus on prevention may lead some individuals to interpret both approach and avoidance items similarly as even those items emphasizing approach goals may be viewed through a prevention framework, leading to a large correlation. Indeed, Zusho and Njoku (2007) found that Anglo Americans (independent self) differentiated among approach and avoidance goal orientations (2 × 2 model) better than Nigerians (interdependent self). However, Murayama et al. (2011) found the underlying factor structure to be equivalent across samples from Japan and the United States.

In their meta-analysis, Hulleman et al. (2010) did not find support for this hypothesis. The nationality of the sample did not account for a significant portion of the variance in the correlation between performance-approach and performance-avoidance goal orientations, although there was some variability in the reliability of performance-approach goals based on nationality. Zusho and colleagues (Zusho & Njoku, 2007; Zusho et al., 2005) addressed this question by focusing on cultural differences between individual (Anglo American) versus collectivist (Nigerian, Asian American) ethnic groups in a series of three studies. In one study, the correlation was significantly stronger (see Footnote 6), as hypothesized, among Asian American college students ($r = .70$, 95% CI [.588, .786]) relative to their Anglo American counterparts ($r = .38$, [.197, .537]; Zusho & Njoku, 2007, Study 2). However, there were no statistically significant differences in the correlations observed by Zusho and Njoku (2007) for either Study 1 (Nigerians: $r = .39$, [.253, .511]; Anglo Americans: $r = .52$, [.399, .623]) or Study 3 (Asian American: $r = .56$, [.274, .755]; Anglo American: $r = .53$, [.217, .744]). Thus, there is no clear evidence that nationality helps to explain the variation in the correlation between performance goals. Of course, further investigation on this topic is warranted given the drawbacks of operationalizing culture strictly in terms of nation of origin and/or race/ethnicity (Zusho & Clayton, 2011).

Specificity of Goal Orientations

The specificity of the assessment of goal orientation, which ranges from domain general to task-specific, might also contribute to the strong correlation. When goal orientations are assessed at the very general level, it is possible that some students may endorse a performance-approach goal orientation for one subject area but a performance-avoidance orientation for another. This would result in a larger correlation between the two performance goal orientations when students are asked to report on their overall academic goal orientation. In contrast, task-level assessment of performance goal orientations might be less highly correlated, as it seems less likely that students would pursue both goal orientations within the context of a single task.

This moderator was not examined by Hulleman et al. (2010); thus, we turned to the extant literature. Bong's (2005) study of Korean high school girls' goal orientations in three courses (mathematics: $r = .58$, 95% CI [.509, .643]; English: $r = .62$, [.554, .678]; Korean: $r = .65$, [.588, .704]) as well as schooling more generally ($r = .67$, [.611, .722]) directly addressed this issue. Given the similarity in the strength of the correlation[7] between the domain-general and domain-specific assessments, Bong's results do not support the hypothesis that domain specificity explains the heterogeneity.

We also examined this moderator based on our larger review of the extant literature. Within these studies, about half of the studies assessed goal orientations at the general academic level, asking students to report on their overall orientation toward academics. We expected that the correlation would be the largest for these types of studies. However, only 27.5% of the studies with domain-general goal orientations had correlations above .50 (Bong, 2005; Finney et al., 2004; Levy-Tossman et al., 2007; Neff et al., 2005; Pajares, 2001; Pekrun et al., 2006; Ross et al., 2002; Shim & Ryan, 2005; M. Smith et al., 2002; Tanaka & Yamauchi, 2001). Most of the studies with domain general goal orientations fell within the small (20%; $r = .10$–$.30$; Church et al., 2001; Cron et al.,

[7] We were not able to statistically compare the strength of these correlation coefficients, which were taken from the same sample rather than independent samples, as there was not sufficient information reported about the intercorrelations across subject domains in Bong (2005). However, the overlapping confidence intervals suggest the correlations are similar.

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2005, Fortunato & Goldblatt, 2006; Hovarth et al., 2006; Niemivirta, 2002; Radosevich et al., 2004; Schmidt & Ford, 2003; E. Skaalvik, 1997) to moderate range (47.5%; r = .30–.50, Church et al., 2001; Dai, 2000; Day et al., 2003; Heimbeck et al., 2003; Kozlowski & Bell, 2006; Pastor et al., 2007; L. Smith et al., 2002; M. Smith et al., 2002; Tanaka et al., 2002a; Tuominen-Soini et al., 2011; VandeWalle & Cummings, 1997), with a few studies (5%) reporting trivial correlations (e.g., Davis et al., 2007; VandeWalle et al., 2001).

Among the studies that assessed goal orientations at the domain-specific or class level, 36.5% reported correlations above .50 (e.g., Bong, 2005, 2009; Karabenick, 2004; Luo et al., 2011; Middleton & Midgley, 1997; Middleton et al., 2004; Midgley & Urdan, 2001; Pajares & Cheong, 2003; Pekrun et al., 2006; Pugh et al., 2010; Ryan et al., 2005; Shih, 2005; Sideridis, 2005b, 2006; Van Yperen, 2006). Similar to studies with domain-general goal orientations, 38.5% of studies assessing domain-specific goals had moderate correlations (r = .30–.50; Bong, 2009; Elliot & Church, 1997; Elliot & McGregor, 1999, 2001; Elliot et al., 1999; Kaplan et al., 2002; McGregor & Elliot, 2002; Pajares & Cheung, 2003; Pajares et al., 2000; Seegers et al., 2004; Sideridis, 2005b; Tanaka et al., 2006; VandeWalle & Cummings, 1997). There were also several studies with small positive (13.5%; Cury et al., 2006; Elliot & McGregor, 2001; Skaalvik, 1997; Sideridis, 2005a, 2006; Thrash & Elliot, 2002), trivial (8%; F. K. Lee et al., 2003; Senko & Harackiewicz, 2005), or negative correlations (4%; Sideridis, 2005a).

Finally, a few studies examined goal orientation for a specific task, typically an upcoming exam. We hypothesized that the correlations for these task-specific goals orientations would be smallest. However, the overall pattern of correlations mirrored that observed for the domain-general and domain-specific assessments. The correlation ranged from small (25%; Elliot & McGregor, 2001; Elliot et al., 1999), moderate (25%; Elliot & McGregor, 1999; Zusho et al., 2005), to large (40%; Elliot & Murayama, 2008; Kaplan et al., 2009; Pekrun et al., 2009; Zusho et al., 2005). Overall, this pattern of findings suggests that specificity of the goal assessment does not help to explain the range of correlations observed.

Assessment Instrument

It is also possible that the assessment tool contributes to the size of the correlation. Hulleman et al. (2010) conducted an extensive analysis examining how the wording of items corresponded to differences in the correlation of the goals to each other and other outcomes. Using an item-by-item analysis, they categorized both performance-approach and performance-avoidance goal questions as assessing appearance (focused on demonstrating and affirming ability/self-worth to others), normative (focused on doing better than others), and evaluative (a combination of normative and appearance) components; performance-avoidance goals were also categorized as assessing negative affect (worry, concern, fear). Those items that did not focus on a goal explicitly were coded as "no goal," and those that included multiple elements previously described within a single item or did not focus on one of the aforementioned components but still contained goal language were coded as "general goal."

Using their item-by-item analysis, Hulleman et al. (2010) then coded the entire scale based on the proportion of items matching the different categories as well as a "majority scale code" that reflected the predominant item type included in the scale. They also created a percentage score reflecting the percentage of items categorized as goal relevant. For performance-approach and performance-avoidance goals, goal-relevant items included those coded as normative, appearance, or evaluative, whereas those coded as no goal or general goal (e.g., not specifically focused on one of the latter three components) were not considered goal relevant. In addition, performance-avoidance items that contained negative affect were excluded from the goal-relevant category. Finally, Hulleman et al. coded studies to indicate which of several common measures (PALS, AGQ, custom scale) were used to assess goal orientations. The two most common measures used were PALS (Midgley et al., 2000) and AGQ (Elliot & Church, 1997; Elliot & McGregor, 2001). A number of investigators also created their own custom scale (e.g., Harackiewicz et al., 1997). Often items in the custom scale were modified from other goal measures such as the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1993), PALS, or AGQ.

Hulleman et al. (2010) found that the size of the performance-approach/performance-avoidance goal correlation varied according to the types of items used. For the performance-approach scales, the correlation between performance-approach and -avoidance goals was stronger when the majority of performance-approach items contained appearance and evaluative items ($\hat{r}$ = .71) or contained a mixture of items with no clear majority ($\hat{r}$ = .50) versus those scales where the majority of items were coded as normative ($\hat{r}$ = .34). For performance-avoidance, the percentage of items coded as goal-relevant explained a significant portion of variance in the correlation among the performance goals. The correlation was stronger when 100% of the items in the performance-avoidance scale were coded as relevant (e.g., normative, evaluative, appearance focused; $\hat{r}$ = .52) in comparison to when none of the items were relevant and all of the items were coded as no-goal, general goal, or negative affect ($\hat{r}$ = .29). This suggests that (a) performance-avoidance scales that did not clearly focus on evaluative, normative, or appearance components, including those that were fear based, and (b) performance-approach scales that primarily assessed the normative component both produced lower correlations between these two forms of performance goals.

In their analysis of the assessment instrument, Hulleman et al. (2010) found that the correlation was lower when

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performance-approach and performance-avoidance goal orientations were assessed with the AGQ ($\hat{r} = .31$) relative to PALS ($\hat{r} = .49$) or a custom scale ($\hat{r} = .43$). One potential reason why the correlation is lower for the AGQ is that the AGQ used fear-based items to assess performance-avoidance goals, whereas the PALS did not. This emphasis on fear for performance-avoidance may create greater separation between the two scales and may help to explain the change in the relative strength. However, goal theorists largely agree that negative affect is not a part of performance-avoidance goals and should not be included in this message (see, e.g., Pekrun et al., 2006). Moreover, given that the AGQ includes a majority of normative performance-approach items and fear-based performance-avoidance items, the aforementioned findings regarding goal components and goal relevance are likely being driven by the AGQ.

In support of this interpretation, a number of recent studies (Cury et al., 2006; Elliot & Murayama, 2008; Pekrun et al., 2006, 2009) revised the performance-avoidance items from the AGQ by (a) removing the emotional or motive wording (i.e., fear) and (b) rewriting the items to be norm-referenced. The changes to the performance-approach items were minimal. In studies using several different versions of the revised AGQ, the correlation varied but was generally quite large (Pekrun et al., 2006, $r = .59$; Elliot & Murayama, 2008, $r = .68$; Pekrun et al., 2009, $r = .75$) with the exception of an initial study by Cury et al. (2006, $r = .18$). When the original and revised versions of the AGQ were directly compared for the same sample of students, the changes resulted in a statistically significant increase (see Footnote 6) in the strength of the correlation ($r_{original} = .41$, 95% CI [.152, .615], $r_{revised} = .91$, [.847, .947]; Easter et al., 2008).

These more recent findings indicate that when performance-avoidance scales are revised to provide a more accurate assessment of performance-avoidance goal orientations and so that both approach and avoidance items are normative, the correlation increases rather than decreases. Thus, although assessment instrument may moderate the strength of the correlation, it does not solve the problem of the large correlation. Improvements in the assessment instrument that allow researchers to more precisely measure goals with less error result in larger correlations between the two forms of performance goals. Moreover, these more recent findings bring into question Hulleman et al. (2010)'s findings that the AGQ results in lower correlations relative to the PALS, as the revised AGQ seems to produce correlations as large or larger than the PALS, and also bring into question whether the correlation will be lower when performance-approach goals are assessed with normative items only. So where does this leave us regarding the assessment instrument as a moderator? Whereas Hulleman et al. (2010) found differences in the strength of the correlation based on assessment instrument, more recent studies suggest that this moderator may have actually been due to error in measurement associated with earlier versions of the AGQ.

Summary

Our review suggests that the correlation between performance-approach and performance-avoidance goal orientations is moderate to large in a number of studies but that there is also substantial variability in the strength across studies. With respect to proposed moderators, our analyses suggested that the correlation does not vary based on fear of failure, culture, or specificity of assessment. There was very limited evidence that it varied based on development or perceived competence, and the findings for perceived competence were mixed. Although there was stronger initial evidence that the way in which goal orientations were assessed accounted for the range of correlations from Hulleman et al. (2010), more recent empirical evidence suggests that revising assessment instruments is likely to strengthen rather than weaken the correlation.

This moderator analysis has several implications for future research. First, our analysis suggests that the magnitude of the correlation does not systematically vary based on the more obvious theoretically relevant moderators identified here. This is a critical first step in that it helps to eliminate several directions for future research and allows the field to focus on alternatives. Second, any differences based on existing assessment instruments do not solve the problem of the large correlation, as more refined measures seem to strengthen rather than weaken the correlation.

In the search for understanding the variability in the correlation, we may need to consider more complex patterns of moderators. Indeed, recent advances in the psychological and learning sciences highlight the complexity of learning and development suggesting a need for a more dynamic, complex perspective for studying motivational processes (Kaplan, Katz, & Flum, 2012). It may be that some of the theoretically based moderators such as perceived competence do shape the strength of the correlation but that their function is more complex than we were able to test here. For instance, perceived competence may function differently depending on the ability levels of other individuals in the same context, which could explain the discrepant findings between the Middleton et al. (2004) and Law et al. (2012) studies. An individual with high perceived competence who is generally focused on demonstrating competence may be more likely to simultaneously focus on avoiding appearing incompetent when he or she enters a context with other highly competent individuals. Indeed, these very large correlations have been observed in samples conducted with students in elite university settings (Ben-Eliyahu & Linnenbrink-Garcia, 2011) and summer programs for talented adolescents (O'Keefe, Ben-Eliyahu, & Linnenbrink-Garcia, 2012).

Another potential moderator is classroom goal structure. As noted earlier, students appear to have difficulty differentiating performance-approach and performance-avoidance classroom goal structures (e.g., Wolters, 2004). If students experience the classroom context as emphasizing

performance more broadly, they may be more likely to endorse both personal performance-approach and -avoidance goal orientations in these contexts. In contrast, for students in a mastery context, any endorsement of performance-approach and/or performance-avoidance goals is likely derived from personal antecedents such as need for achievement, fear of failure, perceived competence, or theories of intelligence. Because only some of these personal antecedents overlap in predicting both types of performance goals, students may be less likely to simultaneously endorse both goals in mastery-focused classrooms. Future research is needed to consider these possibilities.

THEORETICAL, METHODOLOGICAL, AND INSTRUCTIONAL CONSIDERATIONS

Thus far, we have established that there is indeed a large correlation between performance-approach and performance-avoidance goal orientations and that the theoretically hypothesized variables that might moderate the strength of the correlation cannot fully explain it. Given its magnitude, we cannot, however, simply ignore it. Thus, we now turn our attention to theoretical, methodological, and instructional implications of this correlation.

Theoretical Implications

As we noted earlier in this article, there is a clear theoretical basis for differentiating performance-approach and performance-avoidance goal orientations, at least at the level of personal goal orientations. Both the internal antecedents and academic consequences of these two goal orientations are relatively distinct, although there is little evidence that students make a meaningful distinction between classroom goal structures as performance-approach versus -avoidance focused. The distinction between performance-approach and -avoidance goal orientations is also supported by CFAs, although less so for EFAs. Based on this evidence, we certainly do not advocate moving back to a simpler mastery-performance dichotomy. But we must consider why the strong correlation occurs and what it means in terms of theory. Does it exist simply as an artifact of the assessment instrument? Or, does it suggest that individuals endorsing performance-approach goals are also likely to endorse performance-avoidance goals? And if so, what does this mean in terms of related outcomes such as well-being and academic achievement? The question also arises about whether the approach/avoidance distinction is a useful theoretical distinction to make, even if supported statistically, if it is not the way students perceive their own motivational goals and classroom goal structures.

We contend that the most promising avenue for advancing theory related to the large correlation is to focus on understanding the overall pattern of goal orientations. To date, the majority of research has utilized a variable-centered approach, where the emphasis is on how each goal orientation relates to various predictors and outcomes. But we must also consider what the large correlation tells us about how individuals pursue multiple goals. The heterogeneity in the correlation suggests that individuals may vary in the degree to which they simultaneously pursue both performance-approach and performance-avoidance goals. That is, there may be different patterns in students' endorsement of multiple goals that have not been captured in the variable-centered analyses that dominate the field. Person-centered approaches, such as cluster analysis or latent class modeling, can be employed to address individual variation in the simultaneous endorsement of both forms of performance goals as well as to consider the antecedents and consequences of simultaneously endorsing performance-approach and -avoidance goal orientations.

Several recent studies have employed a person-centered approach to create achievement goal profiles (Cano & Berben, 2009; Fortunato & Goldblatt, 2006; Liu, Wang, Tan, Ee, & Koh, 2009; Luo et al., 2011; Pastor et al., 2007; Schwinger & Wild, 2012; Tapola & Niemivirta, 2008; Tuominen-Soini, Salmela-Aro, Niemivirta, 2008, Tuominen-Soini et al., 2011). Although the exact number and nature of the profiles varied across studies, there seems to be growing evidence of a profile in which performance-approach goals combine with mastery goals accompanied by moderate to low levels of performance-avoidance goals. In the other profiles, performance-approach and -avoidance goals are endorsed at similar levels (ranging from both low to both high) or performance-avoidance goals are strongly endorsed with more moderate levels of both mastery and performance-approach goals. This person-centered research highlights the potential variability across individuals in the degree to which both forms of performance goals are concurrently endorsed.

One challenge to the person-centered approach is that different goal profiles emerge across different studies and may also vary as a function of additional variables included in the profiles (see, e.g., Conley, 2012; Dina & Efklides, 2009). Thus, a detailed synthesis of the different motivational profiles that emerge as well as the antecedents and consequences of these profiles is needed. Although this is beyond the scope of the current article, it is important to note that there do seem to be differences in the relation of these motivational profiles to key academic outcomes, with the most beneficial outcomes observed when high performance-approach goals do not combine with high performance-avoidance goals.

A person-centered approach may be especially useful for understanding when performance-approach and performance-avoidance goals are endorsed in tandem. For example, this approach would allow us to examine whether certain profiles are more likely to emerge in certain educational contexts. As we noted earlier, the two forms of performance goals might be endorsed simultaneously in a performance-structured but not a mastery-structured environments. Although not providing direct support for this claim, Tapola and Niemivirta (2008) observed that students in a mastery-oriented profile or an approach-oriented (high mastery, high performance-approach) profile were more likely to

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perceive the classroom as emphasizing mastery than those with a performance-oriented (both approach and avoidance) or performance-avoidance oriented profile, suggesting that students did not simultaneously endorse high level of both performance-approach and -avoidance goals when classrooms were perceived as mastery structured. In addition, goal profiles might shift across the course of the academic year or semester. Perhaps as the possibility of failure becomes salient, students are more likely to endorse both performance-approach and -avoidance goals as they may simultaneously seek to approach success at the same time as avoiding failure. Shifts in perceived competence may also accompany shifts across goal profiles or may interact with the educational context to shape goal profiles. For example, students with low perceived competence working in a performance-structured context may be more likely to strongly endorse both performance-approach and -avoidance goal orientations, but the reverse pattern may be observed when other individuals in the context are also highly competent. Clearly there is a need for researchers to dive in to the thick of these complex relations. The large correlation between performance-approach and -avoidance goals suggests that we can no longer proceed by simply considering each goal orientation in isolation.

In sum, a person-centered approach challenges researchers to move away from a view of distinct goals operating independently and toward building theory that encompasses greater complexity regarding the interrelation of motivational goals. It is also critical that we advance our theoretical understanding of the antecedents of multiple goal endorsement so that we may more clearly understand the situations that lead students to endorse these seemingly opposing goal orientations—and to consider what this means for their subsequent academic engagement and learning.

Methodological Considerations

Although there is empirical evidence to support the approach-avoidance distinction between performance goals, we cannot ignore the large correlation when conducting research. Indeed, the large correlation is symptomatic of methodological concerns in goal orientation research—including improving survey measures, developing measures beyond surveys, and considering the implications of shared variance and suppression—that must be addressed if researchers want to make substantial new progress in achievement goal research.

One of the first methodological issues to be considered is whether or not we can reduce the overall strength of the correlation by changing how goal orientations are assessed. As noted previously, the smallest correlations among scales were reported for the original AGQ as well as for performance-approach scales using items focusing on normative components (outperforming others) and performance-avoidance scales that contained non-goal relevant items, including those focused on fear or anxiety (Hulleman et al., 2010). Given these findings, one seemingly obvious suggestion for reducing the correlation would be to use the original AGQ, as the performance-approach scale is normative and fear-based items are included in the performance-avoidance scale. We do not, however, recommend this approach because reducing the correlation is not the only objective in scale choice. As noted previously, Elliot and his colleagues (Elliot & Murayama, 2008; Pekrun et al. 2006) have made a clear case for revising the AGQ to remove affective language. Indeed, it is certainly possible that the correlation for the original AGQ may have been artificially low given the inclusion of emotion-laden items.

Similarly, the original version of PALS (Midgley et al., 1997) also contains primarily normative items; whereas, the revised version (Midgley et al., 2000) contains a mixture of normative and appearance-based items. Thus, returning to the original version of PALS with a normative focus might also help to reduce the correlation.[8] Again, we do not recommend this approach; the items were revised expressly to focus on orientations rather than specific behaviors and to capture both normative and appearance aspects of performance goals.

Moreover, it is not clear if focusing on the normative component alone will ultimately reduce the correlation. When Hulleman et al. (2010) conducted their meta-analysis, they included articles published prior to 2007. The majority of the scales that used primarily normative items were likely from the original AGQ (or possibly the original version of PALS). Because both scales were improved, it is possible that the reduced correlation observed among scales with normative items is an artifact of other less desirable aspects of these original scales.

Thus, there is no readily apparent solution using existing scales to reduce the correlation. We must ask whether the goal in refining measures should be to substantially reduce the correlation. If the scales are accurately assessing a large correlation, then revising measures to reduce the correlation may result in an artificially suppressed correlation and may result in scales that are constructed for specific statistical results rather than being theoretically driven. Accordingly, researchers must consider how assessment contributes (or does not contribute) to the large correlation when evaluating whether the measures being considered provide a valid approach for assessing goal orientations.

One way to address the validity of current scales is to interview students about commonly used measures to determine whether students' interpretations align with our theoretical conceptualizations (Karabenick et al., 2007; Urdan &

[8]Because both the original and revised scales appear in Midgley et al. (2000), it is very difficult to determine which scales researchers have employed in their research as researchers typically cite the 2000 manual but do not clearly state the version of the scale. Hulleman et al. (2010) did not differentiate between these two versions of PALS in their meta-analysis, likely due to this difficulty in determining which scale was used. Thus, we cannot clearly analyze whether the strength of the correlation shifts between the original and revised version.

Mestas, 2006). The potential failure of the items to tap the underlying construct is clearly illustrated by Urdan and Mestas (2006), who interviewed students about their interpretation of performance-avoidance items. They explained:

> Participants often responded to performance-avoidance items with approach explanations, saying they wanted to appear able or outperform peers even though the question asked about not performing or appearing worse than others. Some students, even with repeated attempts to present the items, interpreted the performance-avoidance goal items differently than the researchers intended. When asked whether they wanted to avoid doing worse than others, students often replied, "Yes, I want to do better than others." (Urdan & Mestas, 2006, p. 363)

In other words, the students may be mentally transforming performance-avoidance items into the approach form. Similar findings have also been observed using cognitive pretesting; middle school students tended to translate avoidance items into approach items when asked to elaborate on avoidance goal items in their own words (Carrell, Zusho, Cuatt, & Huntington, 2011).

Given these initial interview findings, it is possible that the large correlation exists because students fail to differentiate between approach and avoidance dimensions when responding to items. However, this is not the case for all students, as evidenced by the more moderate correlations in some studies. There may be certain students who pursue both forms of performance goals in tandem and thus may view the items similarly. Indeed, individual differences in the tendency to "flip" avoidance items into approach items may be a fruitful avenue for future research. Thus, we raise this point to highlight the potential variability in how students respond to these items. We do not, however, mean to suggest that existing measures lack construct validity.

Developing new methodologies for assessing scales or using new items in existing scales may help with this. For instance, Law et al. (2012) utilized a grid approach, similar to the affective grids used to assess the dimension of valence and affect, to force students to agree/disagree with paired performance-approach and performance-avoidance items. Implicit measures, which are less susceptible to social desirability and self-presentation, and rely less on students' interpretation of questionnaire items, should also be considered. These could include behavioral measures such as feedback/information preferences (e.g., Butler, 1993, Nussbaum & Dweck, 2008) as well as implicit techniques such as priming students with color (Elliot, Maier, Moller, Friedman, & Meinhardt, 2007) or evaluative letters such as A or F (Ciani & Sheldon, 2010). Moving beyond traditional psychometric analysis may also aid in the refinement of measures. There is a clear need for the field to step back and critically evaluate our current assessment tools. Doing so will be especially important for determining whether the large correlation between performance-approach and -avoidance goals stems from the conceptual overlap between these two goals or whether it is simply a function of assessment.

In addition to raising questions about how we should assess goal orientations, a second methodological consideration is how the large correlation between performance-approach and performance-avoidance goal orientations alters analyses when both goals are included as predictors in variable-centered analyses such as multiple regression. When the correlation is large, the amount of shared variance partitioned out is quite substantial. As a result, authors may be making claims based on the relatively small unique contribution of performance-approach or -avoidance goals. Moreover, unique variance is not synonymous with a "pure" form of either performance-approach or -avoidance goals. If our objective in conducting correlational research is to provide some explanation for motivational phenomenon, then statistical significance of unique variance alone cannot dictate our understanding or interpretation of findings. We should strive to generate robust findings that can explain substantial proportions of variance in related outcomes. Thus, researchers may want to consider the potential difference in results depending on whether both goal orientations are included in the regression analysis and make informed decisions about which goals to include in analyses.

Finally, when large correlations exist, there may be additional problems such as statistical suppression. When statistical suppression occurs, a variety of effects may be observed including the inflation of beta coefficients, the reversing of signs, or the emergence of the significant beta coefficient when there is no significant bivariate correlation (Lutz, 1983). These cases of statistical suppression emerge due to the suppression of irrelevant variance. Thus, it is essential that researchers carefully examine their data to determine whether findings emerge as a function of statistical suppression.

Unfortunately, researchers rarely point out unexpected differences between bivariate correlations and regression coefficients. Failure to do so may distort their interpretation of findings. Let us consider how this might unfold using a recent case reported by Pekrun et al. (2009), one of the few studies we identified where statistical suppression was explicitly discussed. For Pekrun et al. (2009), the correlation between performance-approach and performance-avoidance goals was quite large ($r = .75$). When both goals were included in a multiple regression analysis predicting achievement, the standardized regression coefficient for performance-approach goals ($\beta = .38$) was larger than the bivariate correlation ($r = .22$); the regression coefficient for performance-avoidance goal orientations was negative and statistically significant ($\beta = -.23$), whereas the correlation was small and positive ($r = .06$). This represents a form of traditional suppression (Lutz, 1983); performance-avoidance goals helped to control for irrelevant variance in performance-approach goals. Failure to acknowledge the

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shift in findings due to suppression would lead one to conclude that performance-avoidance goal orientations were negatively related to achievement and performance-approach goals had a stronger positive relation than was actually observed. Thus, failing to acknowledge suppression may lead to mistaken theoretical or practical conclusions such as overstating the strength of the relation of performance-approach goals with achievement or the maladaptive nature of performance-avoidance goals. These generalizations contribute to reductionist views of goals as "good" or "bad" that appear both in theoretical explanations of achievement goal theory and in recommendations for educators.

To consider how suppression might alter the interpretation of the extant literature, we examined studies with performance-approach and performance-avoidance goal correlations above .50 from our earlier review for evidence of suppression. Many of the studies included in our initial review did not report regression results or did not report correlation coefficients in a way that allowed us to compare the beta coefficients and the correlations. We also excluded studies that did not report significant regression effects for performance-approach and -avoidance goal orientations, as we were only concerned that suppression might alter the interpretation of significant beta coefficients. For those studies where we were able to directly compare the bivariate correlation coefficient with the standardized multiple regression coefficient, we observed no evidence of suppression in four studies (Bong, 2005; Levy-Tossman et al., 2007; Middleton et al., 2004; Pugh et al., 2010). Most findings where suppression was evident involved a relatively small increase in the strength of the beta coefficient relative to the correlation coefficient, both of which were often statistically significant (e.g., Bong, 2005; Middleton & Midgley, 1997; Pajares, 2001; Pekrun et al., 2006; Senko & Harackiewicz, 2005; Shih, 2005). However, for some studies, the increase was larger (more than .10) or even switched directions (Pekrun et al. 2009; Sideridis, 2005b). Zusho et al. (2007) also identified suppression in several published studies, including those with more moderate correlations (e.g., Elliot & McGregor, 1999; Elliot et al. 1999). Aside from Pekrun et al. (2009) and Pajares (2001), evidence of suppression or a potential problem with multicollinearity was not discussed by the authors.

Taken together, this pattern of findings suggests that statistical suppression effects are not greatly distorting the overall pattern of findings observed in the extant literature. However, given the continuing controversy surrounding performance-approach goals as recently highlighted in Senko et al. (2011), it is important to look for evidence of suppression and to interpret one's findings appropriately. Indeed, given the relatively small effects relating performance-approach goals to achievement ($\hat{r} = .06$ [see Footnote 2]; Hulleman et al., 2010), it is possible that an increase in the multivariate relation relative to the bivariate relation could change the interpretation from a nonsignificant to a significant result. Thus, it is critical that authors, reviewers, and editors keep a watchful eye for signs of suppression, especially when correlations between performance-approach and -avoidance goal orientations are large.

In summary, the large correlation between performance-approach and -avoidance goal orientations points to methodological issues that need to be carefully addressed by the field. One longer term solution to addressing the large correlation is to develop better measurement instruments, including nonquestionnaire measures. Although measurement concerns alone will not address the high correlation, we see a clear urgency in continuing to refine existing and develop new measures. Until we make further progress on this front, we are left with the more practical issue of how to proceed using our current assessments. First, we recommend that researchers carefully evaluate the assessment tool they are using. As we noted previously, we recommend both the AGQ–R and the revised version of PALS over the original version of either scale even though doing so will not necessarily reduce the observed correlation. Whether researchers select the AGQ–R or PALS will likely depend on their theoretical conceptualization, as the AGQ–R has been revised to focus more narrowly on goals, whereas PALS was designed to assess the broader goal orientation construct.

Second, we also strongly urge researchers to conduct and report on factor analyses when using self-report scales. Although some researchers continue to do this, many simply report the reliabilities of the measures. The decision to use exploratory or confirmatory factor analysis will depend on the goals of the article. For those publications that simply intend to use goal orientations as predictors in analyses, CFAs should be sufficient. However, to the extent that researchers are interested in addressing the underlying measurement concerns or are adapting the scales for new populations, subject areas, or contexts, we recommend employing both EFA with ML estimation and CFA, as both analyses provide different information. If factor analyses do not provide sufficient justification for differentiating between the two performance goals, a reasonable solution would be to report the CFA results and then to drop one of the performance goal scales, depending on one's primary research question. We do not, however, advocate simply recombining personal performance-approach and performance-avoidance goals into a single personal performance goal orientation. As we have discussed here, there is clear theoretical and empirical support for making this distinction at the individual level; simply collapsing across dimensions would send us back to the state of the field in the early 1990s.

Third, we recommend a series of best practices for interpreting and reporting on multivariate analyses when the correlation between performance-approach and -avoidance goal orientations is large. One best practice is to report bivariate correlations. Although this suggestion is in line with standard statistical practices recommended by the American Psychological Association (2010), we observed a number

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of published studies that failed to report bivariate relations making it impossible to identify suppression effects without contacting the authors directly. In addition, researchers should carefully compare bivariate and multivariate findings. As noted previously, we found that researchers rarely discussed differences between bivariate and multivariate effects due to statistical suppression. When the multivariate coefficients become larger or change directions, researchers should conduct ancillary analyses to determine what other predictor variables must be in the multivariate model for this effect to occur and then use these findings to interpret their results. To advance our understanding of how both types of performance goals operate, we need to carefully consider what it means when only the unique, nonshared variance predicts academic outcomes. From a practical standpoint, one might question the real-world significance of these findings. Unique variance may make sense for understanding how variables operate, but it provides little insight into how individuals, who may simultaneously endorse both forms of performance goals, engage in academic settings.

Fourth, as an alternative to the primary reliance on variable-centered analyses, the use of person-centered analyses may be particularly helpful as an analytic technique. This approach addresses the concern previously raised regarding the meaningful interpretation of unique variance. With a person-centered analysis, the focus is on various combinations of goals observed in individuals and how the goal profiles related to key outcomes. This approach may allow us to better understand how goal orientations differentially function in the classroom, by considering how different profiles of goals relate to key academic outcomes.

We are hopeful that enhanced methodological understanding and new advances will lead to goal orientation research looking substantially different as we move forward. This may include nonsurvey measurements (e.g., implicit assessments, interviews), careful selection of measures to include in analyses, and thoughtful choice of analyses that take into account the complexity of examining constructs that overlap. Regardless of their approach, it is critical that researchers carefully discuss and acknowledge the large correlation when it emerges and it is also important that reviewers and journal editors remain flexible to a variety of approaches that authors might take for addressing subsequent findings. We hope that editors and reviewers hold authors to these recommended guidelines, as greater transparency and acknowledgement of the large correlation is essential for effectively addressing this issue and advancing the field.

Instructional Implications

The correlation between students' self-reported performance-approach and performance-avoidance goal orientations also has implications for applying achievement goal theory to educational practice. The large correlation suggests that these two personal goal orientations are closely connected, such that the endorsement of one form of performance goal orientation may lead to the other when students pursue these personal goal orientations in educational settings. For example in examining the transition between sixth and seventh grade, Middleton et al. (2004) found that performance-approach goals in sixth grade were predictive of both performance-approach and -avoidance goals in the next year. It is important to note that there is very little empirical evidence to suggest that students simply switch from pursuing performance-approach to pursuing performance-avoidance goal orientations (Senko et al., 2011); rather, students may move from a single focus on performance-approach or performance-avoidance goals to a dual emphasis on performance-approach and -avoidance goals. This simultaneous endorsement is likely to have negative consequences for key academic outcomes. As noted earlier, personal performance-approach goals are generally either positively related or unrelated to beneficial academic outcomes, whereas performance-avoidance goals undermine motivation, engagement, and achievement. Thus, the coupling of the two goal orientations together may either negate any benefits of performance-approach goals or even lead to detrimental academic outcomes.

Moving beyond personal goal orientations, the coupling of performance-approach and performance-avoidance also has implications at the classroom level. Students' perceptions of the classroom context as emphasizing performance-approach and -avoidance appears to be so tightly linked that students are not able to readily distinguish between classrooms that focus on demonstrating competence versus those that emphasize avoiding appearing incompetent (Kaplan et al., 2002; Karabenick, 2004; Murayama & Elliot, 2009; Wolters, 2004; Zusho et al., 2007). In contrast, students seem quite able to delineate mastery and performance classroom goal structures (e.g., Patrick et al., 2001; Wolters, 2004).

Notably, research attempting to separate performance-approach from performance-avoidance classroom goal structures has relied upon student surveys, in particular PALS (Midgley et al., 2000), to assess goal structures. Thus, it is possible that the difficulty differentiating approach and avoidance goal structures is due to a reliance on student perceptions. However, student perceptions are thought to be especially important, as it is these perceptions, rather than some objective goal context, that shape subsequent personal goal endorsement as well as behaviors and cognitions (Ames, 1992b). In addition, the extant research suggesting that students can distinguish general mastery from general performance goal structures typically relies on self-reported perceptions of the classroom context as well. Nonetheless, developing a range of new measurement tools including revised surveys and observation protocols is a critical next step for conducting additional research to capture the more nuanced differences between classrooms focused on approach versus avoidance goal structures.

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In light of the available empirical evidence on classroom goal structures, we contend that the classroom context may be best categorized on the mastery-performance dichotomy. At least at the classroom level, performance-approach and performance-avoidance goal structures appear to be so interconnected that they are not readily separated. Moreover, students' perceptions of performance goal structures predict both performance-approach and -avoidance personal goal orientations (Midgley & Urdan, 2001; Urdan, 2004; Wolters, 2004) and are typically either unrelated to beneficial outcomes or associated with less adaptive outcomes such as lower persistence and achievement as well as heightened cheating, negative affect, procrastination, avoidant help seeking, and self-handicapping (see Linnenbrink, 2004; Urdan, 2010, for reviews). Thus, in line with Brophy's (2005) analysis, encouraging any performance goal structure is potentially harmful because it is unclear how the learner will experience it.

One reason why the emphasis on performance goal structures in classrooms may be harmful, especially relative to some of the potential benefits of personal performance-approach goal orientations, is due to the public nature of instruction and the way that an emphasis on demonstrating competence is interpreted and received at the classroom level. For example, an individual student who has the goal of looking smarter than others and uses strategies to outperform classmates may experience benefits from endorsing a personal performance-approach goal orientation as the student chooses how and where to demonstrate his or her competence. However, when a teacher emphasizes demonstrating competence in the classroom, it may have more negative consequences because it makes ability very public and salient. In addition, the student has little control over the way in which the teacher shares this information—the emphasis on demonstrating competence is forced upon the student. For instance, when a teacher points out that a student received the top score on the exam, this may create discomfort and anxiety for the student. The student may appreciate the praise and recognition, but may also feel heightened anxiety due to the very public nature of the recognition and the potential scorn from other classmates. The student may also feel that the bar has now been visibly raised and may seek to avoid appearing incompetent in the future. As a result, students may not see a clear difference between instructional practices that emphasize performance-approach and -avoidance goal structures and may also experience more negative outcomes when there is any emphasis on performance within the classroom.

The mastery–performance dichotomy alone may also be more applicable and informative for classroom practice than further separating these goal structures into approach and avoidance. The nuanced differences between supporting approach versus avoidance goal structures in the classroom may be difficult to consistently implement and are unlikely to be readily identified by students in the classroom. Thus, guiding teachers in the creation of mastery over performance structures (Ames, 1992a, 1992b; Patrick et al., 2001; Turner, Midgley, Meyer, & Patrick, 2003) may be more helpful and pragmatic than distinguishing between approach and avoidance forms of classroom achievement goal structures.

Accordingly, we recommend that both motivational researchers and content and curriculum specialists work hand in hand with practitioners to focus on supporting mastery goal structures while also moving away from performance goal structures (Urdan & Turner, 2005). Although performance-approach and performance-avoidance personal goal orientations may be recognized as distinct, they are part of a package that should be deemphasized in classrooms in favor of a focus on the development of competence. Elliot and Moller (2003) echoed this sentiment, suggesting that

> all educational environments should be unabashedly mastery-oriented. . . . Rather than structure educational environments to reflect normative concerns that pervade society, educators would do well to highlight task-based and cooperative evaluation structures, and minimize the use of normative structures that evoke performance-approach goals. (p. 351)

CONCLUSION

In this article, we sought to acknowledge the important theoretical and empirical advances in achievement goal theory due to the approach–avoidance distinction (Elliot, 1999) and to clarify the overlap between these two goal constructs at an empirical level. The results of our efforts suggest that there are still open questions regarding the simultaneously distinct and overlapping nature of performance-approach and performance-avoidance goal orientations.

We raise three points for motivation researchers to consider related to this issue. *First*, it seems critical to maintain the significance of the mastery/performance distinction in achievement goals, with a realization that each orientation may have multifaceted complexity. There is clear evidence that constructs related to the broad notions of approach and avoidance are critical within the larger psychological literature on personality differences, affect, and goal pursuits (cf. Elliot & Thrash, 2002; Gray, 1981, 1982, Higgins, 1997). Nevertheless, the conceptual and empirical overlap between performance-approach and performance-avoidance goal orientations warrants further attention. *Second*, we suggest that researchers need to carefully consider how to handle the large correlation that may emerge between performance-approach and -avoidance goal orientations at several levels of analysis including measuring goal orientations and conducting variable- and person-centered analyses. When reporting findings, researchers should clearly discuss potential problems that emerge when the correlation is large—and reviewers should remain open-minded as to the best approach for handling such correlations. *Third*, within the context of schooling, we believe that the mastery–performance distinction may be more relevant than the approach-avoidance

distinction, especially in understanding how classroom contexts shape goal orientations. The extant literature suggests that mastery and performance are the best indicators of classroom and school goal structures. Moreover, the large correlation, as well as the potential simultaneous pursuit of both performance-approach and -avoidance goal orientations, suggests that there may be additional pitfalls to emphasizing performance goal structures in school. We are hopeful that cautious progress with attention to the empirical and practical utility of goals will lead to further theoretical and practical advances regarding our understanding of motivation and achievement.

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