Learning and Individual Differences 61 (2018) 127–135

Contents lists available at ScienceDirect

Learning and Individual Differences

journal homepage: www.elsevier.com/locate/lindif

Different goals, different pathways to success: Performance-approach goals as direct and mastery-approach goals as indirect predictors of grades in mathematics

Athanasios Mouratidis[a,*], Aikaterini Michou[b], Ayşe Nur Demircioğlu[c], Melike Sayil[d]

[a] Department of Psychology, TED University, Turkey
[b] Graduate School of Education, Bilkent University, Turkey
[c] Department of Psychology, Ankara University, Turkey
[d] Department of Psychology, TED University, Ankara, Turkey

ARTICLE INFO

Keywords:
Achievement goals
Learning environment
Academic performance
Challenge seeking
Adolescence
Mathematics

ABSTRACT

In this study, we aimed to investigate the different routes through which perceived goal structures, and in turn mastery-approach and performance-approach goals in mathematics, predict subsequent academic performance. Path analyses with a sample of Turkish adolescents (N = 369; 49.1% males; M_{age} = 16.67 years, SD = 1.85) revealed two distinct paths. After controlling for mid-year grades, we found perceived mastery goal structures to relate (positively) to mastery-approach goals, which in turn positively predicted end-year grades through challenge seeking. In contrast, perceived performance goal structures related positively to both performance-approach and performance-avoidance goals with the former directly predicting higher end-year grades, and the latter being related negatively to challenge seeking. These findings imply that there may exist different paths that can predict academic performance.

1. Introduction

Achievement goal theorists have been debating for over a decade about whether performance-approach goals (i.e., goals that aim at outperforming others) constitute a maladaptive form of motivation and hence whether it should be totally discouraged by teachers and parents (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Midgley, Kaplan, & Middleton, 2001). This is because performance-approach goals, as compared to mastery-approach goals (i.e., goals focusing on attaining mastery and learning), can become a double-edged sword as the highly likely costs (such as challenge avoidance) that they inherently carry outweigh the few benefits that they might bring (e.g., higher grades) (Brophy, 2005). Although mastery-approach goals are considered more adaptive than performance-approach goals (Hulleman & Senko, 2010; Midgley et al., 2001), it should be admitted however that performance-approach goals may become attractive for many students, teachers, and parents, namely because they are positively associated with a valuable outcome: Higher grades.

Indeed, prior research has pointed out that performance-approach goals can more reliably predict academic performance than mastery-approach goals (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010). Yet, as Senko, Hulleman, and Harackiewicz (2011) proposed, mastery-approach goals may also predict higher academic performance, yet indirectly through some intervening mechanisms. Remarkably, although this suggestion seems to resolve several issues regarding whether mastery-approach goals can also predict higher performance, it has received little attention. This is unfortunate because if mastery-approach goals are indeed conducive of higher grades, through different channels, then their utility value can be further underscored.

Showing thus that mastery-approach goals can also predict academic performance, may render performance-approach goals even less attractive among teachers, parents, or education-policy makers who might favor them. In that way, students may be further discouraged to endorse performance-approach goals and thus they may be further protected from their side effects. In our study, we aimed to shed light on this issue. In particular, we aimed to investigate whether mastery-approach goals can also predict, next to performance-approach goals, higher grades, yet indirectly through challenge seeking. We opted for challenge seeking as it is considered a key marker of adaptive achievement striving (Dweck, 1986) and an index of students' cognitive, affective, and motivational growth (Meyer, Turner, & Spencer, 1997). By showing that mastery-approach goals may also predict higher grades at school, we aimed to further highlight the usefulness of mastery-approach goals as the safe route through which students can

* Corresponding author at: Department of Psychology, TED University, Ziya Gokalp, 48, 06420 Ankara, Turkey.
E-mail address: athanasiosmouratidis@tedu.edu.tr (A. Mouratidis).

https://doi.org/10.1016/j.lindif.2017.11.017
Received 21 January 2017; Received in revised form 21 November 2017; Accepted 25 November 2017

pursue their academic goals, including higher grades.

1.1. Achievement goals and academic performance

Broadly speaking, achievement goals have been defined as the reasons for which people strive for success in achievement settings (Ames & Archer, 1988; Dweck & Leggett, 1988; Nicholls, 1984). The most commonly agreed conceptualization of achievement goals distinguishes them depending on how people define and valence (i.e., appraise) competence (Elliot & McGregor, 2001). Based on that definition, three types of achievement goals seem especially relevant in the educational contexts; these are (a) *mastery-approach goals* when competence is defined with absolute or self-referenced criteria and is valenced positively; (b) *performance-approach goals* when competence is defined with normative criteria and is valenced positively; and (c) *performance-avoidance goals* when competence is defined with normative criteria and is valenced negatively. A student who strives to comprehend the subject material of the day or to improve her level of understanding is supposed to endorse mastery-approach goals, while a student who aims at outperforming her peers is supposed to pursue performance-approach goals. Accordingly, a student who aims at avoiding being worse than his or her classmates is said to adopt performance-avoidance goals.

Research has shown that mastery-approach goals are the most consistent and reliable predictors of a wide range of desired outcomes including, but not limited to, interest (Hulleman et al., 2010), enjoyment (Daniels et al., 2009), and challenge seeking (Lee & Kim, 2014). In contrast, performance-avoidance goals have been associated with undesired outcomes such as heightened anxiety (Daniels et al., 2009) and challenge avoidance (Jagacinski, Kumar, & Kokkinou, 2008; Shim & Ryan, 2005). Performance-approach goals have shown a mixed pattern. Some studies for instance have found that they did not differ from mastery-approach goals in outcomes such as task involvement and enjoyment among achievement oriented people (Elliot & Harackiewicz, 1994). Other studies have also shown that although performance-approach goals are not associated with some positive outcomes such as intrinsic motivation (Murayama & Elliot, 2009) and challenge seeking (Lee & Kim, 2014), they predict academic performance (Barron & Harackiewicz, 2003; Wolters, 2004).

Regarding the main aim of our study, the relation of mastery-approach goals and performance-approach goals to school performance, recent literature has revealed that performance-approach goals that are defined as a pure aim to outperform others, rather than as an overarching reason to demonstrate high competence (Elliot, 2005; cf. Kaplan & Maehr, 2007), predict in a more reliable way academic performance, than mastery-approach goals (Bipp & van Dam, 2014; Durik, Lovejoy, & Johnson, 2009; Elliot, McGregor, & Gable, 1999). These findings are consistent with the meta-analysis of Hulleman et al. (2010) but contradict a more recent meta-analysis which has shown that situationally induced mastery-approach goals, as compared to performance-approach ones, lead to somewhat better performance in verbal tasks (Van Yperen, Blaga, & Postmes, 2015).

Regarding school performance, there are also a few studies which have shown that school performance is predicted either by both mastery-approach and performance-approach goals (Chen, 2015; Church, Elliot, & Gable, 2001; Linnenbrink, 2005; Matos, Lens, Vansteenkiste, & Mouratidis, 2017 - Sample 2; Niepel, Brunner, & Preckel, 2014; Senko, Hama, & Belmonte, 2013; Song, Bong, Lee, & Kim, 2015) or by mastery-approach goals only (Keys, Conley, Duncan, & Domina, 2012; Lau & Nie, 2008; Matos et al., 2017 - Sample 1; Shim, Ryan, & Anderson, 2008). Yet, most of these studies showing mastery-approach goals being equivalent or superior to performance-approach goals relied on an earlier conceptualization of performance-approach goals according to which the aim of outperforming others is intertwined with ego concerns – for instance the higher-order aim to demonstrate superior ability (see also Kaplan & Maehr, 2007). Therefore, it remains unclear whether mastery-approach goals are more conducive than performance-approach goals when goals are devoid of a higher-order reason (e.g., to develop competence for mastery-approach goals; to demonstrate competence for performance-approach goals).

Indeed, research has shown that when performance-approach goals are operationally defined as pure aims (i.e., just to outperform others), they predict school performance in a more consistent way than mastery-approach goals do (Hulleman et al., 2010; Senko et al., 2011). Does this mean that students should favor performance-approach goals over mastery-approach goals if they are to achieve academically? Should they become more vigilant only on what is required to learn (Senko et al., 2013) thereby following the teachers' agenda (Hulleman & Senko, 2010)? Not at all, because mastery-approach goals may still lead to improved academic performance. But they may do so in an indirect way. In support of this view, a few studies with university students have shown that mastery-approach goals predict, next to performance-approach goals, higher grades through interest (Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008) or enjoyment (Daniels et al., 2009).

Yet, as this brief overview of studies that operationally defined achievement goals as pure aims suggests, the indirect paths linking mastery-approach goals with academic performance have been shown in studies conducted in higher-education contexts and among university students. So, a question that awaits answering is whether a similar path exist in secondary educational systems, where interest, enjoyment, or challenge is less likely to manifest in courses, like mathematics, that are compulsory rather than elective. To the best of our knowledge, there has been only one study which investigated a similar process among high school students and which has also shown through path analysis mastery-approach goals to predict higher grades through interest (Dinger, Dickhauser, Spinath, & Steinmayr, 2013). Yet, in that research the effects of prior grades were not considered. We therefore intended to revisit this issue by controlling for prior grades, by assessing performance-approach goals as well as mastery-approach and performance-avoidance goals as pure aims, and by examining challenge seeking as a particular mechanism that mediates the relation between mastery-approach (but not performance-approach or performance-avoidance goals) and school performance.

1.2. Challenge seeking and achievement goals

As said, challenge seeking constitutes an adaptive motivational response pattern (Dweck & Leggett, 1988), namely because it is inherently tied with intrinsic motivation (Lepper, Corpus, & Iyengar, 2005). Indeed, students who enjoy challenges (or perceive academic tasks as such) are more likely to recruit their inner resources and invest more time and effort in their schoolwork (Putwain et al., 2016; Strati, Schmidt, & Maier, 2017). Besides, as Grant and Dweck (2003) have shown, seeking challenging tasks and striving for learning are closely associated to each other and they together predict more energy expenditure and persistence in class work (see also Donnellan, 2008). Apparently, such an adaptive response pattern is presumed to facilitate performance in the long run (Dettmers, Trautwein, Lüdtke, Kunter, & Baumert, 2010) because, among others, challenge seeking seems to coincide with deep strategy use, preference for difficult tasks, and taking action in the face of impediments (Turner, Thorpe, & Meyer, 1998).

Further support to the view that challenge seeking may act as the link between mastery approach goals and school performance comes from the meta-analytic review conducted by Hulleman et al. (2010). These authors found that mastery-approach goals that in their operational definition embrace the notion of challenge seeking and (or) interest were more positively related to performance ($r = 0.14$) as compared to mastery-approach goals that focus on mastery and improvement ($r = 0.05$). This meta-analytic finding implies that challenge-seeking may perhaps drive part of the relation between mastery-approach goals and performance, something which becomes unnoticed