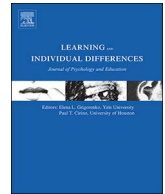




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Sex differences in the development of achievement goals in middle school

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ABSTRACT

Achievement goals have been a key issue in research on motivation over the last three decades. However, few longitudinal studies have been conducted on sex differences in the development of achievement goals in middle school. The aim of this study is to provide information on this issue. Therefore, we assessed the mastery, performance-approach, and performance-avoidance goals in 6853 students who completed questionnaires in Grades 5, 7, and 9. The achievement goal construct remained stable over time and across sex. Latent growth curve analyses indicated that all achievement goals declined throughout middle school and latent difference score models illustrated that the greatest decline occurred between Grades 5 and 7. While girls reported higher levels of mastery goals throughout middle school, there was a stronger decline of performance goals in boys during this period. Our findings underline the importance of exploring the development of achievement goals in greater depth.

1. Introduction

Achievement goals determine behavior in achievement situations (Kaplan & Maehr, 2007) and have been a key issue in research on motivation over the last three decades (Elliot & McGregor, 2001). In their trichotomous achievement goal framework, Elliot and Harackiewicz (1996) differentiate mastery goals, which describe a students' aim to enhance personal competence, from performance-approach and performance-avoidance goals. Students who adopt performance-approach goals aim to demonstrate competence. On the contrary, students who pursue performance-avoidance goals wish to avoid demonstrating incompetence. There has been extensive empirical research on the characteristics of achievement goals and their role in achievement motivation. However, relatively little is known about how achievement goals develop over the school years (Tuominen-Soini, Salmela-Aro, & Niemivirta, 2012).

Middle school is frequently associated with declines in achievement motivation (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002). In Germany, middle school generally comprises Grades 5 to 9/10¹ and marks an important period in the students' development as the students' academic achievement during this period partly determines their career prospects. Girls frequently outperform boys during this period (Helbig, 2010). Moreover, students in Germany might show a rather maladaptive development of achievement goals as they are confronted with the challenges of transition to middle school when they are relatively

young.

The aim of the present study is to investigate the development of mastery, performance-approach and performance-avoidance goals across middle school and corresponding sex differences. Such investigations could help to identify potential maladaptive motivational processes that occur in middle school and to understand why girls frequently outperform their male counterparts during this period. This knowledge might help to develop suitable learning environments for girls and boys. Moreover, testing the structural stability of the achievement goal construct over time and across groups in this context contributes to a deeper understanding of the theoretical construct of achievement goals as these analyses indicate whether the achievement goal construct suits boys and girls in the same way at different age groups.

1.1. Achievement goals and their role in academic achievement

An individual's achievement goal determines how he/she "[...] interpret[s], evaluate[s], and act[s] on achievement-relevant information and experience[s] achievement settings [...]" (Elliot & Harackiewicz, 1996, p. 426). In early research on this topic mastery goals were differentiated from performance goals (Dweck & Leggett, 1988). Mastery goals are expected to result in a preference for demanding learning situations and a positive affect towards such situations (Elliot & Harackiewicz, 1996). Individuals who

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adopt performance goals, on the contrary, prefer less challenging assignments and tend to adopt negative feelings towards learning situations (Elliot & Harackiewicz, 1996). In 1996, Elliot and Harackiewicz divided the former performance goal into performance-approach goal and performance-avoidance goal. Although a wide range of achievement goal frameworks have been described (e.g., a 2×2 model by Elliot and McGregor, 2001) children and adolescents usually adopt mastery-approach, performance-avoidance, or performance-approach goals (Elliot & McGregor, 2001). Therefore, we focus on this framework.

Mastery goals have been found to be one of the strongest predictors of students' performance on achievement tests, the use of deeper-level learning strategies (Fisher & Ford, 1998), and of students' GPA (Steinmayr, Bipp, & Spinath, 2011). Performance-avoidance goals, on the contrary, have been found to be associated negatively with the use of learning strategies (Fisher & Ford, 1998), and positively with low grades and negative affect in learning situations (Urduan, Ryan, Anderman, & Gheen, 2002). Concerning performance-approach goals results from empirical studies are mixed (Elliot, 1999). Single studies have shown a positive association between these goals and academic achievement (Elliot & Church, 1997) and levels of intrinsic motivation (Elliot & Harackiewicz, 1996). Others have found these goals to be associated with maladaptive learning strategies (e.g., Midgley, Kaplan, & Middleton, 2001).

1.2. The development of achievement goals

Investigations into the development of achievement goals have included discussions on the changes in and stability of these goals. Fryer and Elliot (2007) presented arguments for stable and changing factors. They argued for example that “achievement goals [...] emerge from stable factors [as for example personality traits and] [...] remain grounded in these factors throughout the process of goal pursuit and regulation” (Fryer & Elliot, 2007, p. 700). However, they also argued that achievement goals can be seen as part of self-regulation processes, in which case they are likely to change according to experiences and feedback. Thus, in theory, achievement goals are partly stable but can also change over time (Fryer & Elliot, 2007). Research findings on the development of achievement goals have supported this assumption: Correlational studies indicate moderate to high levels of stability between two measurement points (Middleton, Kaplan, & Midgley, 2004). Nonetheless, mastery goals have been found to generally decline (Corker, Donnellan, & Bowels, 2013). Performance-approach goals have been found to remain stable in some studies (Bong, 2005) and to decline in other studies (Shim, Ryan, & Anderson, 2008). Performance-avoidance goals have been found to increase (Fryer & Elliot, 2007), to decrease (Corker et al., 2013) or to remain stable (Pajares & Cheong, 2003). Studies, that investigated the effect size of the reported change show that these effects are rather small (Corker et al., 2013). The studies listed above represent only a small part of research on the development of achievement goals. Nonetheless, they indicate that results on the development of achievement goals vary. In part this may be due to the differing contexts and samples under investigation.

Studies on the effect of educational transitions on achievement goal endorsement showed that mastery goals declined (Anderman & Anderman, 1999) while performance goals increased after transition to middle school (Anderman & Midgley, 1997). In middle school the learning environment generally is less personal (Urduan & Midgley, 2003) and students' performance is more emphasized than in elementary school (Finsterwald, 2006). In Germany, transition to middle school generally takes place after Grade 4. Thus, students are approximately 10 years old when they are confronted with this transition. The early transition to middle school in Germany might affect the development of the students' achievement goals rather negatively compared to those of students of the same age at other countries. In line with this assumption students' achievement goals have

been shown to be affected by contextual factors as well as individual variables, as for example age (Pajares & Cheong, 2003) or sex (Shim et al., 2008). In Germany, girls often obtain better grades than boys, have fewer problems managing transition to middle school and receive more frequently than boys the necessary qualifications to attend university (Helbig, 2010). Investigating sex differences in the development of achievement goals might provide information helpful to understanding this phenomenon.

1.3. Sex differences in achievement goals and stability of the achievement goal construct

Gender differences in motivational beliefs and behaviors are assumed to follow gender-specific social norms and stereotypes (Meece, Glienke, & Burg, 2006). Thus, girls are supposed to focus on enhancing personal competence and avoiding demonstrating incompetence while boys rather focus on demonstrating their competence and enjoying competitive settings. Findings concerning sex differences in achievement goals showed mixed results. While for example Fryer and Elliot (2007) found no consistent pattern of sex differences, others showed that boys had higher levels of mastery goals than girls (Meece & Jones, 1996). On the contrary, Pajares and Cheong (2003) found higher levels of mastery goals in girls and higher levels of performance goals in boys. Other studies indicate that the students' background matters: Middleton and Midgley (1997) reported that African-American girls had higher levels of mastery goals than African-American boys, while no sex differences have been found in European-American students. In samples with a European background significantly higher levels of mastery goals were found in girls (Dekker et al., 2013; Steinmayr & Spinath, 2008). Moreover, Dekker et al. (2013) found higher levels of performance-avoidance goals in female students. Steinmayr and Spinath (2008), however, reported no significant sex differences in any performance goal. These varying results might be due to background variables such as ethnicity, socioeconomic status (SES), and the “classroom context” (Meece et al., 2006, p. 360). Moreover, most studies described above are cross-sectional. A longitudinal study might provide deeper insight on sex differences in achievement goals during different stages of development.

Longitudinal studies require testing of the structural stability of the construct under investigation (Murayama, Elliot, & Yamagata, 2011). Investigating whether the factor structure proposed by the trichotomous achievement goal framework is stable over time and across sex provides information on the psychometric properties of the instrument used to assess the achievement goals. However, it might also provide valuable information about the theoretical construct as it indicates whether the construct similarly suits boys and girls as they grow older. Murayama et al. (2011) found that the separation of performance-avoidance goals and performance-approach goals was justified for groups differing in cultural background and age by conducting exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Spinath, Stiensmeier-Pelster, Schöne, and Dickhäuser (2002, 2012) tested and confirmed the factor structure of a four-factor achievement goal construct² by EFA. Sparfeldt, Buch, Wirthwein, and Rost (2007) confirmed their findings when conducting CFA. However, no findings were reported in the studies concerning the structural stability of the framework over time and across groups.

1.4. Research objectives

The aim of this study is to investigate the development of achievement goals throughout middle school and corresponding sex differences. Transition to middle school confronts students with a new

² Additionally to the trichotomous achievement goal construct Spinath et al. (2002) assessed work-avoidance goals.

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