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Gendered pathways to educational aspirations: The role of academic self-concept, school burnout, achievement and interest in mathematics and reading

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ABSTRACT

The aim of this study was to examine lower secondary school students' (N = 1152) pathways to educational aspirations. The study used multi-group structural equation modelling to investigate the predictions of academic self-concept, school burnout, achievement, and interest in mathematics and reading, in relation to educational aspirations for boys and girls. While certain factors were influential for students' academic aspirations irrespective of gender, some interesting differences also emerged. Academic self-concept and interest in reading predicted educational aspirations for both groups. However, gendered pathways emerged in how achievement and interest in mathematics predicted educational aspirations. Interest in mathematics predicted girls' educational aspirations, whereas mathematics achievement was a significant predictor for boys. School burnout had negative indirect effects through interest in reading and mathematics in both groups, but for girls, there was also a direct positive effect on educational aspirations.

1. Introduction

According to previous research, educational aspirations—the nature and level of students' academic goals—are influential not only regarding adolescents' career and occupational decisions and outcomes (Eccles, 2009; Schoon & Parsons, 2002), but also their overall well-being later in life (Ashby & Schoon, 2012). The research has also identified several academic and motivational individual difference factors that play a role in the process by which educational aspirations are formed (Wigfield & Eccles, 2000). Moreover, recent studies have suggested that the pathways to aspirations may, at least in some respect, be different for boys and girls (Watt et al., 2012). Uncovering the mechanism underlying the 'gendered pathways' (Domene, Shapka, & Keating, 2006) to educational aspirations might offer a means of better understanding and intervening in adolescents stereotyped belief-systems. As such belief-systems may unnecessarily limit future educational choices and occupational possibilities, examining their role in adolescents' goals and plans is important.

Previous research has mainly focused on identifying the predictors of adolescents' educational aspirations in the science, technology, engineering, and mathematics (STEM) fields (Guo, Marsh, Parker, Morin, & Yeung, 2015; Watt et al., 2012) and, to a lesser degree, within the domain of reading (Durik, Vida, & Eccles, 2006). Only a few studies have combined the indicators relating to these two academic domains (Nagy, Trautwein, Baumert, Köller, & Garrett, 2006; Viljaranta, Nurmi, Aunola, & Salmela-Aro, 2009). As the effects of performance and motivational beliefs on educational aspirations seem to differ both by gender and academic domain, the importance of examining multiple domains simultaneously to be able to control for the effects of the other domains on educational aspirations, is highlighted.

Furthermore, the factors that researchers have used to predict educational aspirations have mainly included indicators of the students' performance-related outcomes (e.g., grades; Durik et al., 2006) and different sets of motivational beliefs (e.g., self-concept and interest; Nagy et al., 2006), and largely ignored the factors reflecting the students' psychological well-being. As researchers have found that problems in students' socio-emotional functioning (e.g., school burnout) relate to low academic achievement (Kiuru, Aunola, Nurmi, Leskinen, & Salmela-Aro, 2008), depression

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(Bakker et al., 2000; Salmela-Aro, Savolainen, & Holopainen, 2009), unfavourable motivational tendencies (Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008, 2012) and educational dropout (Korhonen, Linnanmäki, & Aunio, 2014), we can expect them to play a role also in adolescents' educational aspirations. Consequently, our study aimed to contribute to previous research by (a) examining adolescent students' gendered educational aspirations at the end of compulsory education, using indicators relating to both mathematics and reading, and (b) including an indicator of students' socio-emotional functioning among the predictive variables.

In the following sections we will review the literature in the field. First, educational aspirations are discussed in the light of different operationalisations and gender differences. Second, the most influential predictors of educational aspirations are presented and finally, gendered pathways emerging from these predictors to educational aspirations are acknowledged.

1.1. Educational aspirations

Educational aspirations during adolescence have been studied to explain educational disparities in general, and individuals' occupational choices and attainment later in life, in particular (Domina, Conley, & Farkas, 2011; Rojewski, 2005). There is no universally accepted definition for the term educational aspirations, but it is generally used as referring to a person's goals and plans within an academic setting (Trebbels, 2015). Researchers have defined and measured educational aspirations via the number of career plans per adolescents (Mendez & Crawford, 2002), the prestige of their educational aspirations (Leung, Conoley, & Scheel, 1994; Viljaranta et al., 2009), and the level of self-set educational goals (Vasalampi, Salmela-Aro, & Nurmi, 2009; Watt et al., 2012). Educational aspirations have also been theorized as being either idealistic or realistic. While idealistic aspirations refer to the attainment level that the student desires, realistic aspirations reflect the actual perceived likelihood of success and more pragmatic expectations of completing a certain level of education (Rojewski, 2005). However, in several studies focusing on educational choices, the operationalisations of educational aspirations have covered both idealistic and realistic alternatives, while no clear distinction has been made between the two terms (Chow, Eccles, & Salmela-Aro, 2012; Durik et al., 2006; Guo, Marsh, Parker et al., 2015). There has also been a tendency to examine educational aspirations within a specific academic domain, and the most common domain of interest has been mathematics (Chow et al., 2012; Watt, Eccles, & Durik, 2006). In some studies, girls have reported higher educational aspirations (Mahaffy & Ward, 2002; Mau & Bikos, 2000), whereas in other studies, boys' aspirations have been higher (Inoue, 1999; Mendez & Crawford, 2002). There have also been studies that found no gender differences in educational aspirations (e.g. Ireson & Hallam, 2009; Watt et al., 2012). Besides the possible gender differences in the level of educational aspirations, it also seems that the processes or paths that lead to these aspirations may differ as a function of gender (Domene et al., 2006; Watt et al., 2012).

1.2. Predictors of educational aspirations

1.2.1. Academic achievement

Students' abilities and academic success shape their educational and occupational aspirations. Adolescents' aptitudes (e.g., IQ) and achievement (e.g., grades or grade point average) have been shown to display from moderate to strong effects on the level of educational aspirations (Guo, Marsh, Morin, Parker, & Kaur, 2015; Liu, Cheng, Chen, & Wu, 2009; Wigfield & Eccles, 2000) and later achievement-related choices (e.g., university entry, Schoon, 2008). In adolescent samples, mathematics (Ozturk, 2006; Shapka, Domene, & Keating, 2006) and reading achievement (Savolainen, Ahonen, Aro, Tolvanen, & Holopainen, 2008) have both been found to influence educational aspirations, and it also seems that the effects within these domains are similar for both genders (Durik et al., 2006; Shapka et al., 2006; Simpkins, Davis-Kean, & Eccles, 2006). However, there is a lack of studies addressing the effects of both achievement in more than one school domain and gender, at the same time. As an exception, Mau (1995) included mathematics, reading, and science achievement in the prediction of educational aspirations. While achievement in all three domains predicted students' educational aspirations, the role of gender was not addressed. In other words, for now it is not well known whether the effects of mathematics and reading achievement on educational aspirations would differ when considered simultaneously, and as a function of gender.

Moreover, academic abilities and achievement are not, by themselves, sufficient factors to explain students' educational aspirations and choices. For example, it is a familiar phenomenon identified in several countries that irrespective of adolescent girls' high mathematics and science grades, they are underrepresented in advanced STEM courses and occupational fields (Ceci & Williams, 2010; Else-Quest, Hyde, & Linn, 2010). Further, it has been documented that along with the possible direct effects, the influence of academic achievement may be indirect, mediated by different motivational constructs (Parker, Nagy, Trautwein, & Lüdtke, 2014). Besides cognitive abilities, students' motivational beliefs play a crucial role in educational goal-setting and decision-making processes (Eccles, 2009).

1.2.2. Motivational beliefs

According to prominent theories of motivation (e.g., the expectancy-value model, self-concept and interest theories), both students' competence-related perceptions (e.g., self-concept) and value-laden motivational beliefs (e.g., utility and interest perceptions) are influential in terms of the nature and level of academic goals (Eccles, 2009; Wigfield & Cambria, 2010). While competence perceptions seem to ensure that the goal is experienced as attainable (i.e., one has sufficient ability and skills to reach it), the perceived value of the engagement itself—intrinsic interest in learning or in specific academic domain, for example—supports persistence and commitment to the goal (Hofer, 2010; Schunk & Pajares, 2005).

Several studies have investigated the relationship between motivational beliefs and educational aspirations. In general, individual differences in competence perceptions (Ireson & Hallam, 2009) and interest (Nagy et al., 2006) have been the most powerful predictors (Guo, Marsh, Morin, et al., 2015; Wigfield & Eccles, 1992). In many of the studies, students' competence perceptions have been conceptualized through self-concept —a mental representation of one's personal competencies in academic domains in general, or in relation to a specific school-subject (Marsh & Craven, 1997; Marsh, Craven, & Debus, 1991). In addition to educational aspirations (Guo, Marsh, Parker, et al., 2015), academic or domain-specific self-concept has been shown to be positively associated with students' academic achievement (Marsh, Hau, & Kong, 2002; Valentine, DuBois, & Cooper, 2004), interest (Viljaranta, Tolvanen, Aunola, & Nurmi, 2014), and students' overall psychological well-being (Chui & Wong, 2016; Marsh, Trautwein, Ludtke, Köller, & Baumert, 2006). In fact, current research suggests a reciprocal developmental relationship between achievement, self-concept, and interest, with a strengthening tendency during the school years (Denissen, Zarrett, & Eccles, 2007; Möller, Retelsdorf, Köller, & Marsh, 2011).