



Transcending the gender dichotomy in educational gender gap research: The association between gender identity and academic self-efficacy



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ARTICLE INFO

Article history:

Available online 13 October 2014

Keywords:

Gender identity
Intrasexual differences
Educational gender gap
Self-efficacy

ABSTRACT

Educational gender gap research tends to focus on differences between boys' and girls' achievement. However, substantial variation exists within the sexes concerning this educational achievement. In this study, we investigate the inter- and intrasexual differences in academic self-efficacy in a sample of 6380 Flemish seventh graders collected in the school year 2012–2013. To adequately consider masculinity and femininity on a micro level, we employ the concept of gender identity. Results show that considerable inter- and intrasexual differences exist. In line with the educational gender gap, girls scoring high on self-perceived femininity are at the top of the pack. Self-perceived masculine boys score considerably lower on academic self-efficacy; however, they still do much better than cross-gender boys and girls. The poor results of boys and girls who perceive themselves to be gender atypical are partly explained by the students' lower well-being. The results are discussed in light of masculinity and femininity.

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1. Introduction

In recent decades, the gender gap in education has become a problem that has captured the minds of policymakers and researchers alike. It became clear in the 1990s that girls had started to outperform boys on several parameters and these trends continue to this day: boys repeat grades more often (Fergusson & Horwood, 1997; Van Landeghem, Goos, & Van Damme, 2010), have lower marks in class (Duckworth & Seligman, 2006; Epstein, Elwood, Hey, & Maw, 1998; Fergusson & Horwood, 1997; Jackson, 1998; Van de Gaer, Pustjens, Van Damme, & De Munter, 2006; Younger & Warrington, 1996), drop out more often (Buchmann, DiPrete, & McDaniel, 2008; Fergusson & Horwood, 1997; Van Landeghem et al., 2010), have lower enrollment in higher education (Buchmann et al., 2008; Van Woensel, 2007) and are overrepresented in special education services and remedial classes (Benjamin, 2003). These findings are not limited to one country, but are encountered all over the western world (Benjamin, 2003; Martínez, Julia, Mari-Klose, & Mari-Klose, 2012) and thus constitute a pervasive challenge.

In order to remedy this underachievement of boys, it is important to understand the processes through which achievement is determined. Academic self-efficacy has proven to be one of the most central predictors of educational achievement. Self-efficacy refers

to people's beliefs in their capability to perform certain tasks (Bandura, 1997; Schunk & Pajares, 2001; Zimmerman, 2000) and has been shown to connect both directly (Bandura, 1997; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Multon, Brown, & Lent, 1991) and indirectly to academic achievement (Bandura, 1997; Multon et al., 1991; Zimmerman, 2000).

Gender differences in self-efficacy are rather complex and nuanced. For instance, gender differences in self-efficacy only start to occur in adolescence and tend to be mostly subject-specific, with girls having higher self-efficacy in language arts and boys in mathematics (Huang, 2013). These multifaceted findings can be clarified through the framework of masculinities theory. Masculinities theory takes gendered peer cultures into account and hence clarifies how students 'do gender' in their everyday lives at school. For instance, certain subjects are considered to be masculine or feminine (Connell, 1996; Martino, 1996). Since students tend to be more sure of themselves in subjects which fit within their gender-category (Pajares, 2002; Pajares & Valiante, 2001; Schunk & Pajares, 2001), this raises boys' self-efficacy for 'masculine' subjects, such as mathematics, and girls' self-efficacy for language arts.

One of the largest problems with masculinities theory, however, is that it has a group-based approach and therefore neglects intrasexual differences (Francis, 2000, 2010). Despite the general tendency for girls to outperform boys, research has shown there are high-performing boys and low-achieving girls as well. Because of the theory's focus on general intersexual differences, these female low-achievers and male high-achievers are rendered invisible (Warrington, Younger, & Williams, 2000). We suggest that to

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adequately understand the mechanisms through which boys and girls end up at the top or the bottom of a class and thus to remedy the educational gender gap, it is important to consider not only intersexual differences, but those intrasexual differences as well.

We put gender identity forward as a concept that could help to account for these intrasexual differences. Gender identity, a central concept in multifactorial theory (see below), refers to the extent to which someone feels to be masculine or feminine, regardless of biological sex, given what it means to be masculine or feminine in a given society (Perry & Pauletti, 2011; Stets & Burke, 2000; Tobin et al., 2010; Wood & Eagly, 2009). This concept thus builds on masculinities theory by equally considering the impact of masculinity/femininity on behavior, choices, dispositions, and traits. However, unlike masculinities theory which assesses group-based gender cultures, gender identity gauges masculinity and femininity on an individual level and thus goes beyond masculinities theory's scope.

In this paper we will investigate the way sex and gender identity link to academic self-efficacy. It should be noted that we will consider self-efficacy for self-regulated learning. This form of self-efficacy is less gender biased than domain-specific self-efficacy (Huang, 2013), such as self-efficacy for mathematics or language, and is more pertinent to general academic achievement than self-efficacy in a specific school subject (Pajares, 2002; Pajares & Valiante, 2001). More specifically, we will consider the interaction between sex and gender identity to investigate inter- and intrasexual differences regarding the association of self-perceived masculinity/femininity on self-efficacy. This way, we hope to better understand the underlying processes that lead to girls' and boys' educational success.

2. Self-efficacy and achievement

Self-efficacy refers to the beliefs and confidence that one can perform certain tasks or behaviors and is grounded within the larger theoretical framework known as social cognitive theory. This theory proposes that human achievement is dependent on one's behaviors, internal personal factors (such as cognitive, affective and biological events) and environmental conditions (Bandura, 1997; Schunk & Pajares, 2001). Hence, social cognitive theory encompasses a large array of motivators and regulators of social, behavioral and cognitive capabilities. Self-efficacy occupies a central role in this theory, because it acts upon several of these determinants. For instance, self-efficacy influences choice of activities, motivational level, execution of capabilities and so on (Bandura, 1997). Considering this broad-ranging impact of self-efficacy, it will come as no surprise that self-efficacy is considered to be one of the most important contributors to academic achievement (Hattie, 2008; Schunk & Pajares, 2001; Yusuf, 2011). A meta-analysis has shown, for instance, that self-efficacy beliefs account for 14% of variation in student's academic performance with an effect-size of 0.38 (Multon et al., 1991). Moreover, studies have shown that it impacts on achievement both directly and indirectly, as will be discussed below.

Firstly, self-efficacy contributes directly to achievement (Bandura, 1997; Bandura et al., 1996; Caprara, Vecchione, Alessandri, Gerbino, & Barbaranelli, 2011; Greene, Miller, Crowson, Duke, & Akey, 2004; Multon et al., 1991; Yusuf, 2011), because self-efficacy enables people to effectively use their perceived skills (Bandura, 1997), according to the observed demands of the situation (Salomon, 1984). Self-efficacy beliefs thus function as a sort of self-fulfilling prophecy, by affecting how consistently and effectively people apply what they know (Bandura, 1997). Consequently, it turns out to be a better predictor of performance than skills or intellectual aptitude alone. For instance, the association between self-efficacy and achievement remains, even when controlling for prior achievement (Yusuf, 2011);

And, in children of the same ability level, more efficacious children obtained better scores than their less efficacious counterparts (Bandura, 1997).

Secondly, self-efficacy also contributes indirectly to academic achievement through important learning behaviors, such as strategic thinking and motivational processes. For instance, it has been shown that high-efficacious students manage their work-time better (Bandura, 1997; Pajares, 2002), are more persistent (Bandura, 1997; Multon et al., 1991; Zimmerman, 2000), derive more pleasure and enjoyment from their tasks, (Bandura, 1997) and employ more deep cognitive processing (Pintrich & De Groot, 1990; Walker, Greene, & Mansell, 2006). Efficacious students also set higher aspirations for themselves (Bandura 1997; Bandura et al., 1996; Pajares, 2002; Zimmerman, 2000) and are less likely to suffer from test anxiety (Bandura, 1997; Pintrich & De Groot, 1990) or other negative emotional reactions (Bandura, 1997; Bandura et al., 1996; Zimmerman, 2000).

In conclusion, through both its direct and indirect influence, self-efficacy has an encompassing impact on academic achievement and is an important variable to consider in educational research.

3. Self-efficacy and gender

Since self-efficacy is a central factor in educational achievement, it is interesting to see how it can contribute to the explanation of the gender gap in academic attainment. Most research finds some gender differences; however, these results were often inconsistent (Meece, Glienke, & Burg, 2006). Huang (2013) performed a meta-analysis, which included over 200 studies, to better answer the question regarding gender differences in self-efficacy. Her results show that age is an important moderator. Apparently, gender differences in self-efficacy only start to occur in early adolescence and increase with age, while there are usually no gender differences in elementary school (Huang, 2013).

Not only age is an important moderator for gender differences in efficacy beliefs, the school subject turns out to be a central moderator as well (Huang, 2013). Boys have higher self-efficacy in mathematics (effect size (β) = 0.18) and computer sciences (β = 0.18). Girls, on the other hand, have a higher self-efficacy in language arts (β = 0.16) and a small advantage in general academic self-efficacy (β = 0.03). Instead of investigating self-efficacy for specific school subjects, Pajares (2002) investigated self-efficacy for self-regulated learning. His results show that girls usually outperform boys in their capability to organize their work, employ meta-cognitive strategies and show effort management.

However, as Pajares and Valiante (2001) justly note, gender differences cannot be accounted for within social cognitive theory. They state: 'Social cognitive theory does not endow gender self-beliefs with agentic and motivating properties. And neither does it endow gender itself with such properties' (Pajares & Valiante, 2001, p. 12). So, researchers usually end up accounting for these differences on an ad-hoc basis, without linking these to an overarching theory. They usually refer to the perceived, stereotypical nature of the school domains in which gender differences are observed. Mathematics and computer sciences are seen as male domains, so boys wish to excel in these subjects because their self-perceptions are infused with the notion that success is a requirement (Pajares, 2002; Pajares & Valiante, 2001; Schunk & Pajares, 2001). Conversely, girls' mathematics' self-efficacy would be lower because they feel that this is a male domain. This would imply that it is harder for girls to excel in mathematics and this notion would then undermine both girls' confidence and interest in this subject. Pajares and Valiante (2001) confirmed that these gender differences are greater when someone holds more gender stereotypical beliefs by demonstrating how a feminine gender orientation accounts for the gender differences in writing self-efficacy.

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