



Context-related changes in academic self concept development: On the long-term persistence of big-fish-little-pond effects



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ABSTRACT

Academic self-concept (ASC) is subject to substantial change throughout the course of schooling. Besides individual factors, contextual characteristics play an important role in driving changes in self-perception. The abilities of classmates are especially important: Equally able students report lower ASCs when in high-achieving classrooms than when in low-achieving classrooms. This contextual effect is known as the Big-Fish-Little-Pond Effect (BFLPE). Although the BFLPE has been replicated in different settings, little is known about whether it is important across consecutive contexts. Therefore, we analyze the effects of various contexts on students' ASCs. We draw on a sample of fourth graders, who transitioned from elementary school to secondary school. Using contextual information from both elementary and secondary school, our results indicate that the BFLPE exists in both elementary-school and secondary-school contexts. Yet, when students moved to secondary-school, the BFLPE from elementary school successively diminished and was no longer discernible after one year.

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1. Introduction

Academic self-concept (ASC), i.e. the beliefs and self-perceptions of individuals about their competences and skills are considered one of the most prominent outcomes of schooling. While in the narrowest sense schooling is intended to foster students' learning in academic domains, it is also important that students perceive themselves as competent and motivated. Empirical studies have demonstrated that ASC is one of the core dimensions of learning, and is a relevant factor in the development of other learning-related dimensions—such as academic interest and educational aspirations (Nagengast & Marsh, 2012; Trautwein, Lüdtke, Marsh, Köller, & Baumert, 2006)—and for educational career decisions (Marsh & Yeung, 1997; Nagy, Trautwein, Köller, Baumert, & Garrett, 2006).

Therefore, the question of how self-perceptions develop and what causes changes in these perceptions is genuinely interesting. According to Gore and Cross (2014), one of the main drivers of change in self-perception is social comparison of individuals, as an

individual's comparison with his social environment is a central source of information about himself. Research on the so-called *big-fish-little-pond* effect (BFLPE; Marsh, 1984, 1987) provided evidence that individuals who are exposed to a high-achieving reference group perceive themselves as academically less able and less competent than do equally able individuals who are exposed to a low-achieving reference group. Hence, changes in social environments drive changes in self-perception, since new and different contextual information is provided during the transition into the new context (see also Harter, 2003).

Although the BFLPE has been intensely studied and appears to be generalizable across different countries, cultural contexts, and school systems (Chmielewski, Dumont, & Trautwein, 2013; Marsh & Hau, 2003; Seaton, Marsh, & Craven, 2009), surprisingly few studies have investigated the BFLPE in longitudinal designs (Dai & Rinn, 2008). In particular, there are hardly any studies on the trans-contextual importance of the BFLPE, i.e. whether the effect transfers from one developmental context into the next consecutive one.

The present study addresses precisely this deficit in the research. We investigate how the BFLPE transfers from one context to the next and how two sequential contexts relate to each other over time for the development of ASC. We draw on a sample of students transitioning from elementary to secondary school. The specific design offers information about the class average

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achievement of both the old and the new learning contexts and allows us to examine the interplay between two BFLPEs and the relevance of the BFLPE for longitudinal development—in a nutshell, whether the BFLPE matters for long-term development.

1.1. Academic self-concept and BFLPE

The BFLPE (or contrast effect, [Chmielewski et al., 2013](#)) refers to a contextual sensitivity of individuals' self-perceptions. In the context of schooling, students' self-perceptions of their academic achievement and abilities are affected by the classroom and/or school context, in particular by the achievement of their peers: Students in high-achieving classrooms report a lower ASC than equally able students in comparatively low-achieving classrooms. In regression analyses, this BFLPE is represented by a negative regression coefficient of the mean achievement level of the class after controlling for individual achievement. The nature of this effect in academic settings is almost ubiquitous and has been replicated across diverse educational settings ([Chmielewski et al., 2013](#); [Marsh & Hau, 2003](#); [Seaton et al., 2009](#)).

Although there are various theoretical accounts of the BFLPE (for an overview see, e.g., [Marsh & Hau, 2003](#); [Marsh et al., 2008](#)), the main mechanism involves social comparisons within reference groups, resulting in *contrast* effects. Within a school, and even more so within a classroom, students observe and learn about the performance of their peers, for example, via school grades and the feedback of teachers and peers. They gather information, deliberately or involuntarily, about the hierarchy of achievement and their specific position within their reference group. [Huguet et al. \(2009\)](#) showed that social comparisons can explain the BFLPE as it relates to ASC; after controlling for the students' perceptions of their own positions in the achievement hierarchy within a specific context, no additional BFLPE remains.

In line with this assumption, [Chmielewski et al. \(2013\)](#) showed that the degree of availability of comparison information influenced the visibility of BFLPEs in various school system structures. The BFLPE was most prominent in school systems in which students of different ability levels were separated into different school tracks. In contrast, in school systems in which students were grouped by ability within one school (via streaming or setting), the BFLPE was also present, but negative contrast effects were counterbalanced by *basking-in-reflected-glory* effects (BIRGE), i.e., positive effects based on the salience of knowledge of belonging to an elite group (also called assimilation effects; [Chmielewski et al., 2013](#)). Therefore, explicitly tracked school systems such as the German school system typically produce strong negative BFLPEs; the separation of students into different school types implies that information for overarching achievement comparisons are less available or not at all available ([Becker et al., 2014](#); [Chmielewski et al., 2013](#); [Trautwein et al., 2006](#)).

1.2. On the long-term dynamic and persistence of the BFLPE

Despite the relatively robust replicability of the BFLPE across various educational contexts and subgroups, there are intense debates about its dynamic nature and overarching long-term importance (see [Dai & Rinn, 2008](#); [Dai, 2004](#); [Marsh et al., 2008](#)). On the one hand, some studies point out that the BFLPE is not simply a single cross-sectional phenomenon that occurs after a student enters a new learning context; instead, it appears to develop and persist in the long-term within a certain reference system. For example, in one of the few existing longitudinal studies, [Marsh, Köller, and Baumert \(2001\)](#) showed that students who had recently entered a different learning environment (explicitly differentiated school tracks in this case) initially reported dissimilar

self-concepts to their peers who had already been exposed to those school tracks for two years. Yet after one year of schooling, the entering students reported comparable self-concepts to those of the students who had been exposed to these specific contexts for a longer time. Drawing on this, [Marsh and O'Mara \(2010\)](#) concluded that BFLPEs persist or even increase over time for students within a stable educational setting (for an overview, see also [Marsh et al., 2008](#)).

In addition, some (but very few) studies have found that the BFLPE remains present in domain-specific ASCs even beyond the original high school context. For example, [Marsh, Trautwein, Lüdtke, Baumert, and Köller \(2007\)](#) showed that a domain-specific BFLPE persisted for two and four years after individuals left school and have entered vocational training, college education, or the job market. Other studies found evidence of the BFLPE in other psychosocial characteristics such as educational aspirations ([Marsh, 1991](#); [Marsh & O'Mara, 2010](#); [Marsh et al., 2007](#)).

On the other hand, some studies have found no indication of context-related BFLPEs. For example, studies investigating the effects of students attending a summer camp failed repeatedly to show any change in ASC ([Cunningham & Rinn, 2007](#); similarly [Makel, Lee, Olszewski-Kubilius, & Putallaz, 2012](#)). Disregarding the details about the specific interpretability of these results (for an overview and discussion, see [Becker et al., 2014](#); [Dai & Rinn, 2008](#); [Marsh et al., 2008](#)), what these studies highlight is that not all exposure to different contexts leads to changes in ASC. For instance, a short exposure to a different context (e.g., summer camp) seems irrelevant for changes in self-concept. Drawing on this, [Dai and Rinn \(2008\)](#) highlight the need for studies that allow for the longitudinal, dynamic modeling of BFLPEs in different contexts over time, so as to provide a better understanding of the conditions that lead to changes in ASC.

To our knowledge, [Wouters, Fraine, Colpin, Van Damme, and Verschueren \(2012\)](#) have provided the best example thus far for modeling the long-term dynamic of the BFLPE in changing learning environments. They used a longitudinal design that focused on students who changed school tracks in the Belgian secondary-school system. The study showed that students' ASCs shifted upward after transitioning to learning contexts with lower-achieving peers, i.e., they experienced a positive BFLPE, because the step down in the school tracks implied a step up in the achievement hierarchy within the consecutive classroom environments. This BFLPE seemed even more pronounced when students were older at the time of transition. After the first impact (i.e., the effect assessed after one year), the BFLPE seemed not to change any further in the consecutive years. Although this study shows that there is an impact of a new context and that it persisted in the long-term, it remains unclear to what extent the older environment still exerted an influence on the subsequent development of ASC in students.

Given that changes in self-concept seem to be strongly environmentally driven, and that self-concept development represents a history of one's learning in different contexts ([Gore & Cross, 2014](#)), it is crucial to know how two learning contexts relate to each other. Yet the question of whether a BFLPE persists trans-contextually remains open in the research. There is the possibility that a later BFLPE will dominate over preceding ones as soon as a student learns his place in the achievement hierarchy, but it may well be that an older context is still "kept in mind" after the student exits the context (e.g., class or school). The studies suggesting the persistence of the BFLPE beyond one specific context, for example, in the earlier years after high school graduation ([Marsh & O'Mara, 2010](#); [Marsh et al., 2007](#)) point towards the latter hypothesis, but these studies also leave several questions unanswered. For example, they do not specify the achievement levels of the new contexts into which individuals transition. Additionally, it remains

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