

Examining Academic Self-Concepts and the Big-Fish-Little-Pond Effect in relation to Inclusive and Segregated Classroom Environments for Students with Mild Intellectual Disabilities

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With positive academic self-concepts posited as key drivers of educational achievement, understanding the structure and enhancement of academic self-concepts has preoccupied the field of educational psychology for the past six decades. The current research investigating academic self-concepts is largely predicated on theories of social comparison (Festinger, 1954) such as the Big-Fish-Little-Pond Effect (BFLPE; Marsh, 1987). The BFLPE suggests that the formation of an individual's academic self-concept is impacted by the academic performance of their peers. Specifically, being a high achiever (i.e., big fish) in a group of averagely lower academic achievers (i.e., little pond) enhances the individual's academic self-concept as opposed to being a high achiever in a group of averagely higher academic achievers. This theory positions the classroom environment as a key determinant of academic self-concepts. Substantive and methodological advances within self-concept theory and research have been achieved mostly through examining the academic self-concepts of students who have been assigned to different educational "ponds", namely students who are identified as high achievers, or gifted and talented where they are allocated to special classes or schools separate from others of lower abilities. Ironically, students with disabilities, such as mild intellectual disabilities, experience significant educational disadvantages and thus are likely to benefit the most from advances in psycho-educational developmental theory, and more specifically, research into academic self-concepts. Students with mild intellectual disabilities are readily able to report their self-concepts and are educated in a range of classroom environments including special schools (schooled with other students with mild intellectual disabilities at a separate institution), special classes (schooled in a separate class with other students with mild intellectual disabilities, but where the class is located within a regular school), and inclusive classes (schooled in a regular class in a regular school with peers of different abilities). Yet, students with mild intellectual disabilities remain an under researched group in terms of understanding the impact of the BFLPE on academic self-concepts when these students are educated in various classroom environments.

This chapter seeks to firstly identify the importance of academic self-concepts to psycho-educational development and review the key theories within the academic self-concept literature, in particular the BFLPE which highlights the impact of classroom environment upon the formation of one's academic self-concepts. The historical and recent research into the academic self-concepts of students with mild intellectual disabilities and the impact of classroom environments, via the BFLPE, will be critiqued. Importantly, methodological weaknesses limiting the research with students with mild intellectual disabilities are identified. Finally, the chapter provides recommendations for future practice and research to cultivate a more robust empirical base on which to generate best practice to support the psycho-educational development of students with mild intellectual disabilities.

The Importance of Academic Self-Concept to Students' Psycho-Educational Development

The attainment of a positive self-concept, and related self-perceptions, are often espoused in educational policy across the developed world. Indeed, the learning framework posited by the OECD Education 2030 Project identifies that the goal of education is to not only foster knowledge and skill acquisition, but develop every student as a whole person and cultivate positive individual wellbeing (OECD, 2018). The theoretical and empirical investigation into students' self-concepts, and associated self-perceptions, has garnered much attention internationally over the past 60 years resulting in methodological and substantive advances that support the psycho-educational development of children and adolescents (for related discussions, see, in this volume, Schunk & DiBenedetto, Chapter 11; Wigfield & Ponnock, Chapter 17).

So, what is self-concept and why is it so important? Self-concept is a term used to describe the perceptions that people hold of themselves, with these perceptions largely constructed through experiences and one's interpretation of these experiences (Shavelson, Hubner, & Stanton, 1976). Early theories proposed that self-concept was a unidimensional construct whereby people considered their perceptions of self in global terms. Shavelson, et al. (1976), however, presented a hierarchical and multidimensional model of self-concept which receives widespread endorsement in the empirical literature (e.g., Marsh & Craven, 2006). Within this model, the apex consists of a higher-order general self-concept which is then broken down into multiple, domain-specific self-concepts with the next level identifying academic and non-academic self-concepts. The specificity of domains becomes more differentiated with increasing age and cognitive development (Marsh & Ayotte, 2003). Research in educational psychology, and indeed this chapter, is concerned with academic self-concepts which refers to one's own evaluation of their ability in general (e.g., I am good at school) or in specific academic domains (e.g., I am good at reading) (Preckel et al., 2017).

A positive academic self-concept in itself is valued as a marker of positive wellbeing. However, it is mostly pursued for its established relationship with educational success. Guo et al. (2015) found that academic self-concept was a stronger predictor of occupational aspirations and educational attainment than intelligence. Empirical evidence supporting the reciprocal effects model indicates that academic self-concept and achievement share a reciprocal relationship whereby there is a significantly positive relation between academic self-concept and subsequent achievement and also between achievement and subsequent academic self-concept within specific academic domains (e.g., Huang, 2011; Marsh et al., 2018; Seaton et al., 2014; Stabler et al., 2017). The empirical research body establishing academic self-concept as a key driver of important academic outcomes has been based largely on work with either typically developing students or high-ability students (e.g., Preckel et al., 2017; Seaton et al., 2015). To date, only one single large scale study has concluded that the reciprocal effects model does exist for students with disabilities, although the sample consisted of students with a vast range of disabilities treated as one group where students with intellectual disabilities made up less than 10% of the sample (Ju, Zhang, & Katsiyannis, 2013).

Knowledge of the consequences of positive academic self-concepts confirms that it is a facilitator of academic achievement and other desirable outcomes (such as academic motivation; Seaton et al., 2014), which produces important implications for educational practices and targeted interventions. Such implications are even more paramount for educating students with mild intellectual disabilities who are characterised by their low academic achievement. Prior to critiquing the research conducted with students with mild intellectual disabilities, this chapter presents a review of social comparison theory and the BFLPE, and the empirical advances in the self-concept field.

Enhancing Academic Self-concepts: The role of Social Comparison Theory and the Big-Fish-Little-Pond Effect

Self-concept research and theory has been heavily influenced by Social Comparison Theory since it was first proposed by Festinger some 60 years ago. Social comparison essentially refers to comparisons that one makes between themselves and others as a basis to inform self-evaluations of one's abilities, or self-concepts (Festinger, 1954). Wood (1996) asserts that when presented with social information, people will automatically perform social comparisons in an effort to make conclusions about their own abilities. For example, when a teacher distributes marks in a spelling test to students, an individual student's self-concept of their spelling ability will not only be informed by their overall mark, but how this mark

compares to the marks achieved by the other students. Similarly, when objective feedback is not available to judge one's ability, Festinger (1954) proposes that comparisons with others can provide a frame of reference from which individuals make judgements about their abilities. The direction of the social comparisons made by individuals will influence their resulting self-concepts. When an individual compares their abilities with others that are worse off than themselves (i.e., downward comparison), the use of a lower comparison group results in a more positive self-evaluation. Likewise, if the comparison is made with others who are better off than themselves (i.e., upward comparison), the use of a higher comparison group results in a less positive self-evaluation (Collins, 2000).

One of the most prolific applications of Social Comparison Theory is the BFLPE, pioneered by Marsh and colleagues (Marsh, 1987), which posits that one's academic self-evaluations, operationalised as academic self-concepts, are shaped by the social comparisons made with the students in one's educational environment. Academic self-concept not only hinges on a student's own academic achievement and abilities but also on those of the student's classmates (Marsh, Morin & Parker, 2015). The BFLPE is the net effect of two counterbalancing influences – contrast effects and assimilation (or reflected-glory) effects (Marsh, Kong, & Hau, 2000). Contrast effects occur when higher school-average achievement leads to lower academic self-concepts, whereas assimilation effects occur when higher perceived school status leads to higher academic self-concepts. As such, the BFLPE contrast effect predicts that individuals who are educated alongside students exhibiting higher academic achievements will evidence lower academic self-concepts; while individuals educated alongside students exhibiting lower academic achievements will evidence higher academic self-concepts (Marsh & Parker, 1984; Wilson et al., 2014). Although one's personal academic achievement is positively related to their academic self-concept, the average achievement level of surrounding students is negatively related to one's academic self-concept (Marsh, Abduljabbar, et al., 2014). BFLPE's assimilation effect, however, predicts that when students associate with a high-achieving group of students, such as a selective class or school, their own academic self-concept will be heightened as a result of this reflected glory. The final academic self-concept reported by an individual, according to the BFLPE, is the net result of both contrast and assimilation effects (Marsh, Kong, & Hau, 2000). For example, imagine a student who sits for a competitive entrance exam and is admitted into a selective school for high achieving students. Simply by being identified as a student of the selective school the academic self-concept of this student is likely to increase (via assimilation effects). Counterbalancing this increase, however, this student is now educated alongside other high achieving students where comparisons in performance may not always be favorable for this student, thus leading to a lowered academic self-concept (via contrast effects). These processes together form the academic self-concept exhibited by the student.

Empirical support for the BFLPE is significant with a robust evidence base having amassed over the last two decades (see Marsh et al., 2008; Seaton & Marsh, 2013 for a review), notwithstanding critiques about possible moderating factors (e.g. Dai & Rinn, 2008; Jonkmann et al., 2012). Research suggests that its impact is intensified the more years a student spends in the same school (Marsh & Craven 2002), and its impact may not be witnessed in short term programs (e.g., a three-week gifted residential program; Dai et al., 2013). Moreover, its effects on important outcomes are still evident after students leave school (Marsh, Trautwein, Lüdtke, Baumert, & Köller, 2007). The universality of the BFLPE has been demonstrated across both student and academic characteristics (Marsh, Abduljabbar, et al., 2014), with early studies into the BFLPE relying primarily on samples in OECD and Western developed countries such as Australia, the United States, Germany, the United Kingdom, as well as Asian countries such as Singapore and Hong Kong (Marsh, Abduljabbar, et al., 2015). Recently, studies have also

been conducted in Middle Eastern Islamic countries (Marsh, Abduljabbar, et al., 2014; Marsh, Abduljabbar, et al., 2015). Using repeated data from the Organization for Economic Cooperation and Development Program for International Student Assessment (OECD-PISA), Nagengast and Marsh (2012) demonstrated the negative effect of school-average achievement on academic self-concepts in all except one of the 123 countries included, with a reported effect size of .223. Although the size of the effect does vary significantly according to cohort, country and their interaction, cross-cultural studies confirm the widespread occurrence of the BFLPE (Marsh, Abduljabbar, et al., 2015).

A critical variable in the BFLPE is the identification of what constitutes the frame of reference, or where the ‘surrounding students’ exist – within the class or broader school environment. Although initial BFLPE research and theory considered the school level as the frame of reference, recent findings highlight that class level effects are more substantial where academic self-concepts are primarily influenced by comparisons with students in one’s own classroom rather than students in one’s own school (Marsh, Kuyper, Morin, Parker, & Seaton, 2014). More recent BFLPE research is now classifying the classroom as the unit of analysis rather than the school (e.g., Marsh, Kuyper, Morin, Parker, & Seaton, 2014; Marsh, Abduljabbar, et al., 2015) in support of the demonstrated local dominance effect (Marsh, Kuyper, Morin, Parker, & Seaton, 2014), whereby individuals typically use the most localised social information available to them (Dai et al., 2013; Zell & Alicke, 2009). The BFLPE, therefore, casts the immediate classroom in which the student resides as the most critical to the formation of academic self-concepts.

Potential Individual and Classroom Moderators of the Big-Fish-Little-Pond Effect

With the local dominance effect (Marsh, Kuyper, Morin, Parker, & Seaton, 2014) prioritising a student’s immediate classroom environment as central to the formation of the BFLPE, BFLPE studies have investigated a variety of potential moderators – both individual and classroom based. Results of this body of research have mostly characterised the BFLPE as a universal phenomenon (Marsh & Hau, 2003) where “BFLPE findings are remarkably robust, generalizing over a wide variety of different individual student and contextual level characteristics, settings, countries, long-term follow-ups, and research designs” (Marsh et al., 2008, p.319).

Contextual variables of the classroom have largely been recognized as ineffectual in moderating the BFLPE. The composition of the student population within the classroom, and thus frames of references employed (e.g., gender, ethnicity-specific frames of references) appears to have no impact on the formation of academic self-concepts (Liem et al., 2013). Although an increasing class size appears to decrease the effect of peers’ average achievement on an individual’s perceived academic position within the class, it did not have any significant moderating effect on students’ academic self-concepts, and thus the instrumental BFLPE (Thijs, Verkuyten, & Helmond, 2010). Finally, a common recommendation for educators emanating from the BFLPE research is to modify the provision of feedback in order to reduce the competition and social comparison process that underpins the BFLPE (Marsh & Craven, 2002). Indeed, Liou (2014) hypothesised that where countries evidence a lower occurrence of the BFLPE, the establishment of a less competitive classroom environment that privileges interest-driven learning may be responsible (Liou, 2014). Empirical research attests, however, that although the teaching practice of providing feedback which emphasizes individual improvement and effort bolsters students’ academic self-concept it does not disrupt the occurrence of the BFLPE (Lüdtke, et al., 2005). It is concluded that “the BFLPE is apparently

a very robust effect that generalizes well over a variety of characteristics of students, teacher, and classrooms” (Lüdtke et al., 2005, p.282).

Examination of the influence of student individual characteristics on the BFLPE has generally demonstrated no evidence of moderation (Seaton, Marsh, Yeung & Craven, 2011). However, there is some evidence that the BFLPE is accentuated for students who were highly anxious, used memorization as a learning strategy, or reported a cooperative orientation (Seaton, Marsh, & Craven, 2010), or it is minimised for students high in narcissism (Jonkman et al., 2012).

Although the role of the BFLPE in forming academic self-concepts is recognized, Dai and Rinn (2008) contend that the BFLPE overemphasises one aspect of social comparison while largely ignoring other critical individual and contextual factors that may mediate the BFLPE. Their critique of the BFLPE theory and research methodology calls for a broader inquiry into the more nuanced individual and social-contextual influences of the BFLPE. Dai and Rinn (2008) argue that in order to inform educational practice and policy based on the BFLPE, “the question of when and for whom it is likely to occur should be answered” (p. 300).

Empirical Big-Fish-Little-Pond Effect research with students of different abilities

Theoretical and substantive advances regarding the BFLPE have been achieved mostly through empirical work with large samples of either typically developing students or high-achieving students in academically selective school systems such as special schools or classes for gifted and talented students (e.g., Wilson et al., 2014). Similarly, the significant educational implications posited by the BFLPE have been applied to support the psycho-educational development of high-achieving students more so than any other group of students (e.g., Marsh & Craven, 2002). Consistent with predictions made by the BFLPE, research has demonstrated that placing high-achieving students in selective segregated classes with other high-achieving students has a negative consequence on their academic self-concepts (Marsh, Abduljabbar, et al., 2015). The positive impact of the assimilation effect, or reflected glory, on academic self-concept is accompanied by the negative impact of contrast effects resulting in lowered academic self-concepts thus presenting the negative impact segregated classroom environments can have on high-achieving students.

International educational policy and practice also sees low achieving students placed in both regular classrooms with students of mixed ability and segregated classrooms with other low-achieving students. Emerging research is now capitalising on unique nationwide within-school ability grouping practices across the world to interrogate the occurrence and implications of the BFLPE for low-achieving students. Singapore adopts a national within-school ability grouping policy where secondary students are placed in three tracks, or streams, based on their achievement in English, mathematics, science and mother tongue. These three tracks are labelled Higher (high ability), Standard (middle ability) and Foundation (low ability). Liem et al. (2013) investigated the academic self-concepts of 4,461 Singaporean secondary students and found that, as predicted by the BFLPE, after controlling for the impact of student achievement, students in the low ability Foundation track exhibited higher academic self-concepts in English and math than did the students in the high ability Higher track.

Liem et al. (2013) concluded that the BFLPE also operates for low-achieving students and, as opposed to the observed ramifications for high achieving students, segregation into tracks with students of similar abilities is an educational practice that benefits low achieving students as their academic self-concepts are boosted. Other research, however, questions whether components of the BFLPE, namely the reciprocal effects model, work in the same way

for students with different achievement levels. Using data from the Trends in International Mathematics and Science Study in Taiwan, Liou (2014) found that there is a nonlinear relationship between individual student's achievement and academic self-concept whereby those at the top level of achievement would benefit most in academic self-concept for every incremental increase in their achievement compared to those at the lower end. As such, the positive effect of individual achievement on one's academic self-concepts may not be as prominent for students with low achievement compared to students with average to high achievement.

Students with Mild Intellectual Disabilities

This chapter has presented the theoretical and empirical advances in the self-concept field, based largely on students with average or high academic ability and now seeks to critique the limited research conducted with students with mild intellectual disabilities. Whilst research typically considers students with disabilities as a homogenous group regardless of their diagnosis (e.g., Whitley, 2008), Bouck and Satsangi (2015) identify that students with mild intellectual disabilities differ in cognitive skills and aptitude from other students with high incidence difficulties such as learning disabilities and moderate to severe intellectual disabilities, and thus warrant unique consideration within the research literature. The definition and terminology employed to describe students with mild intellectual disabilities has transformed over time as societal norms and beliefs have altered. Historically, terms such as mentally handicapped and mentally retarded were used, while the label educable mentally handicapped was used more specifically to denote students with mild intellectual disabilities (Schalock et al., 2010). Today, the term intellectual disability is adopted (WHO, 2001) with diagnostic practices shifting away from intelligence quotients as the prevailing criterion to an emphasis on adaptive functioning and the supports that an individual requires (American Psychiatric Association, 2013). This chapter seeks to focus on students with mild intellectual disabilities, described as having below-average intellectual functioning together with difficulties in multiple adaptive skills (Schalock et al., 2010).

The inclusion movement and the changing classroom environment for students with mild intellectual disabilities

In the developed world, there have been considerable changes in the philosophy and policy regarding the education of students with disabilities, in particular for those with mild intellectual disabilities who have previously been deemed 'educable'. Over time, policies and practices of segregation have been replaced by policies and practices of inclusion, a concept that emerged in the 1990s and dominates international educational policy today (Inclusion International, 2009; Whiteley, 2008). Although there is no single definition of inclusion (Doyle & Giangreco, 2013), and the concept extends well beyond the idea of physical classroom environment, many definitions include the location of the student's education as a cornerstone of inclusion. For example, Hunt and Goetz (1997, p.3) define inclusion as "*in which students with disabilities are full-time members in general education classrooms*" and Cologon (2013, p. 6) defines that "*Inclusive education ... involves valuing and supporting the full participation of all people together within mainstream educational settings*". As such, the classroom environment in which the student with a mild intellectual disability is educated becomes a core feature of the inclusion movement.

Interestingly, educational practice does not necessarily mirror educational policy with data suggesting that in some countries despite policy support for inclusive education, placement in the regular classroom environment with peers is "*the exception rather than the rule*" (Doyle

& Giangreco, 2013, p.61). For example, in Australia, inclusive education is endorsed at a policy level yet the data collected around school placement indicates that there still appears to be a full continuum of classroom environments in which students with mild intellectual disabilities reside: (1) special schools; (2) special classes in regular schools; and (3) regular classrooms (Australian Institute of Health and Welfare, 2017). With students with mild intellectual disabilities being educated in a range of classroom environments with peers presenting with different academic achievement levels, the BFLPE predicts that inclusive education would have a detrimental influence on students' academic self-concepts and subsequent academic achievement (based on the reciprocal effects model). Unfortunately, the quantity and quality of research investigating this phenomenon is low, as elaborated below.

Research investigating the impact of classroom environment on the academic self-concepts of students with mild intellectual disabilities

Early research – global self-concepts and the efficacy studies

Coinciding with the rising social justice and civil rights movement of the 1960s, empirical studies became interested in testing the impact of segregation practices upon the self-concept of students with disabilities. Students with mild intellectual disabilities were often the targeted participants of such studies as they were among the first to move into more inclusive environments given they were perceived as 'educable'. A series of empirical studies were published, coined the 'efficacy studies', that heavily influenced the thinking of researchers and educators at the time. Studies conducted by Gottlieb, Hutten and Budoff (1971) and Carvajal (1972) found no significant difference in global self-concept when students were placed in a segregated or integrated setting (which was the term used at the time to indicate an environment where students without disabilities were also present). Representative of the theoretical understanding at the time; self-concept was measured as a unidimensional construct with one of the most popular tools of the day – the Illinois Index of Self Derogation (Meyerowitz, 1962). Other studies were more explicit about the possible damages caused by segregation. Carroll (1967) found that students with mild intellectual disabilities placed in fully segregated special schools evidenced lower self-concepts than those placed in a partially included environment where they were in a regular class for half-day. Similarly, Kendall (1977) found that students with mild intellectual disabilities placed fulltime in a special class reported a lower self-concept than those placed in either regular class fulltime or regular class with additional support from the learning resource centre.

In response to this emerging body of work, Dunn (1968) called for a moratorium of segregated classroom placement, concluding that:

Separating a child from other children in his neighbourhood – or removing him from the regular classroom for therapy or special class placement – probably has a serious debilitating effect upon his self image ... Removing a handicapped child from the regular grades for special education probably contributes significantly to his feelings of inferiority and problems of acceptance (p.9).

Recent research – emerging studies considering academic self-concepts and the BFLPE

Since the publication of the 'efficacy studies', a multidimensional structure of self-concept has been largely endorsed, with academic self-concepts specifically implicated in the BFLPE. Surprisingly, even though the classroom environment varies significantly for students

with mild intellectual disabilities, and the critical importance placed on bolstering academic self-concepts, Maïano et al.'s (2018) systematic review found that few empirical studies have been conducted to examine the impact of being placed in various classroom environments on the *academic* self-concepts of students with mild intellectual disabilities (also see Huck, Kemp, & Carter, 2010; Hunt & Goetz, 1997; Szumski & Karwowski, 2015). Of those that have been conducted, although limited by methodological shortcomings, it appears that their results largely contradict the findings of the 'efficacy studies' and indicate that the BFLPE is evident for students with mild intellectual disabilities.

Tracey, Marsh and Craven (2003) conducted two complementary studies utilising both a cross sectional and longitudinal approach to address this issue. Following the verification of the sound validity and reliability of the Self-Description Questionnaire I (Individual Administration) (SDQI-IA) (Marsh, Craven, & Debus, 1991) for use with students with mild intellectual disabilities, they compared the multidimensional self-concepts of 211 students (98 placed in regular inclusive classrooms; 113 placed in special classes within regular schools). Structural equation path coefficients indicated that students placed in the segregated classes with other students with mild intellectual disabilities evidenced higher academic self-concepts (reading, mathematics, general-school) than their counterparts in regular classroom environments with students of mixed abilities. These effects remained stable across age and gender.

In their subsequent longitudinal study, Tracey et al. (2003) followed 39 students with mild intellectual disabilities across three time waves. At Time 1 students were at the end of Year 2 and all placed in a regular classroom. At the beginning of Year 3, 21 remained in a regular classroom with peers of mixed abilities while 18 had moved into a segregated class with other students with mild intellectual disabilities within a regular school. Time 2 occurred six months into Year 3, while Time 3 occurred at the end of the Year 3 academic school year. With Time 1 used as a covariate, responses on the SDQI-IA (Marsh, Craven, & Debus, 1991) revealed that at Time 3 (but not Time 2) students placed in the segregated class reported higher reading, mathematics and general-school self-concepts than their peers in the regular classroom. In sum, results of both the cross-sectional and longitudinal investigations support the BFLPE. Furthermore, with the administration of a measure of social comparison, it was evident that students placed in the segregated classroom were more likely to compare themselves with a person 'not as good as them' (i.e., downward comparisons) whereas students in the regular classroom were more likely to compare themselves with a person 'better than them' (i.e., upward comparisons).

Szumski and Karwowski (2015) conducted a cross sectional study with 605 students with mild intellectual disabilities in either segregated schools or non-segregated schools. Consistent with the predictions of the BFLPE they found that students attending segregated schools reported higher academic self-concepts, even after controlling for confounding school and family characteristics. They concluded that social comparisons, and thus the immediate classroom environment of students with mild intellectual disabilities, play a key role in the witnessed effects of the BFLPE.

Interestingly, Szumski and Karwowski (2015) found that the relationship between academic self-concepts and academic achievement was complex, with achievement scores for the highest achieving group serving as a negative predictor of academic self-concept. They hypothesised that, among students with mild intellectual disabilities, those with relatively high achievement have a greater awareness of the gap between themselves and their peers without intellectual disabilities (thus inferring that the contrast effects underpinning the BFLPE would be stronger for this subgroup of students with mild intellectual disabilities).

There are, however, findings which contradict the BFLPE. Begley (1999) adopted a cross sectional design and administered the Pictorial Scale of Perceived Competence and Acceptance (Harter & Pike, 1984) to 64 students with Down syndrome aged 8 to 16 years (intelligence quotients not specified). She reported that students educated in regular schools evidenced higher mean academic self-concepts than those educated in special segregated schools (although these mean differences were not statistically different). Begley (1999) hypothesised that various innate characteristics of the sample may have contributed to this finding, with one possible reason being that “*pupils with Down syndrome may never decide to use, or develop the capacity for, making social comparisons*” (p.524). Although based on a cross-sectional study with a small sample size and utilising an unverified scale for this population, Begley’s (1999) conclusion still calls into question not only the existence of the BFLPE in this population, but the underlying mechanisms by which academic self-concept is formed and whether this differs for students with mild intellectual disabilities.

Methodological challenges limiting the investigation of academic self-concepts and the BFLPE with students with mild intellectual disabilities

Progress in understanding the academic self-concepts of students with mild intellectual disabilities and the role of the BFLPE has been undermined by not only the lack of studies tackling this issue but, of the limited studies available, the methodological quality has been characterised as low (Maïano et al., 2018). Foremost, a review of the empirical investigation into the impact of classroom environments on the academic self-concepts of students with mild intellectual disabilities reveals a worrying absence of inquiry relative to the rise of the international inclusive education movement. This dearth of research may be explained by two main drivers. Firstly, within disability research there is an over-representation of studies which “*essentially describe the ‘problem’*” (Llewellyn, 2014, p.8) rather than investigating practices that may enhance psycho-educational development. Indeed, Shurr and Bouck’s (2013) systematic review found that only 2% of the literature pertaining to students with intellectual disabilities published during 1996 to 2010 focused on how best to enhance academic achievement of students with disabilities, the ultimate goal of education. Secondly, advances in self-concept research with students with mild intellectual disabilities have been hindered by fundamental methodological issues (Maïano et al, 2018).

A perennial flaw in self-concept research with students with mild intellectual disabilities is the reliance on measurement tools that either provide no evidence of validity or reliability for this population (Maiano et al., 2018), or undermine validity by utilising a measure that does not represent the multidimensional structure of self-concept as posited by Shavelson, Hubner, and Stanton (1976). The early ‘efficacy studies’ based their findings on a global self-concept score which is not sensitive to the predictions of the BFLPE. The measurement of academic self-concepts for students with mild intellectual disabilities was further hampered when Silon and Harter (1985) concluded that students with mild intellectual disabilities were unable to report self-concepts in specific competence domains using Harter and Pike’s (1984) Pictorial Scale of Perceived Competence and Social Acceptance for Young Children. Studies adopting measures that do not assess specific academic self-concepts therefore are unable to examine the impact of the BFLPE or relationships between academic self-concepts and academic achievement (e.g. Huck, Kemp & Carter, 2010; Whitley, 2008). Tracey et al. (2003) successfully demonstrated that students with mild intellectual disabilities (aged 7 to 13 years) could reliably report multidimensional self-concepts by adapting the administration of the SDQI-IA (Marsh, Craven, & Debus, 1991) and as such the adapted SDQI-IA can be used to test the BFLPE and the relationship between academic self-concepts and academic achievement. Similarly, Elias, Vermeer and Hart (2005) found a three-factor solution

(cognitive, physical and peer competence) for the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter & Parker, 1984) with 106 children with mild intellectual disabilities (mean age 8 years 3 months) which is promising for this field of research.

Furthermore, research with students with mild intellectual disabilities is generally characterised by small sample sizes (e.g., Begley, 1999; Huck, Kemp, & Carter, 2010) given the labour-intensive task of recruiting students who generally make up approximately 3% of the population (ABS, 2012) and largely require individualized administration of measurement tools. As a result, sophisticated designs and statistical analyses are not applied and often groups of students with various disabilities or difficulties, with a plethora of comorbid characteristics, are pooled together within the one study (e.g., Whitley, 2008).

Additionally, there is an absence of longitudinal designs, which precludes the examination of the reciprocal effects model to determine the relationship between academic self-concepts and academic achievement for students with mild intellectual disabilities. Such designs would not only enhance our theoretical understanding but could, most importantly, inform educational practice for students with mild intellectual disabilities. The interrogation of the BFLPE is also weakened via cross sectional designs where the characteristics of students with mild intellectual disabilities placed in segregated versus regular classroom environments vary significantly. Longitudinal designs permit the examination of the BFLPE where changes in academic self-concept trajectories can be measured overtime with classroom environment accounted for as a covariate.

Finally, variance at both an individual and class level for students with mild intellectual disabilities may be too great to account for, resulting in questionable external validity. Trautner and Schwinger's (2018) recent study with over 400 students (aged 7 to 11 years) with mild learning difficulties incorporated a sophisticated person- and variable-centred approach via Factor Mixture Modeling. This approach examined the differences between classroom environment and the consequences of other factors such as gender, cognitive abilities and socioeconomic status. Although an encouraging advancement in research design, the study itself considers students with an average intelligence who exhibit difficulties in learning (a group with higher incidence than those with mild intellectual disabilities) and is unable to provide advice regarding students with mild intellectual disabilities.

Future Directions for Research

First and foremost, there is an imperative need for an intensification of research studies that seek to understand the academic self-concepts of students with mild intellectual disabilities, the relationship between academic self-concepts and academic achievement, and the impact of various classroom environments on academic self-concepts (and potential moderators). Not only will such activity enhance our theoretical understanding of self-concepts, such knowledge will directly benefit the psycho-educational development of a group of highly disadvantaged students. With the international rise of inclusive education, theory and research must inform and reflect practice.

Research with students with mild intellectual disabilities poses significant innate challenges that undermine robust and sophisticated research designs, as critiqued in this chapter. Notwithstanding, the improvement of the methodological quality of self-concept research with students with mild intellectual disabilities must be a priority in future research (Maïano, et al., 2018). Longitudinal designs with larger sample sizes, premised on the use of valid and reliable multidimensional measurements of self-concepts, must be expanded to address questions that

remain unanswered for students with mild intellectual disabilities. In practice, these challenges are not easily overcome and would require a large investment of researcher time given incidence rates and administration requirements. Furthermore, designs and analyses need to consider the variance across individual and class level. Future research may be focused on specific populations such as students with mild intellectual disabilities and/or adopt a ‘Universal Design for Learning’ approach to research where all mainstream research is designed in a manner that effectively includes students with disabilities to build our capacity in this area.

Substantively, this chapter encourages the investigation of three main lines of inquiry. Firstly, empirical research is yet to determine if the reciprocal effects model functions for students with mild intellectual disabilities, with research to date providing equivocal results. The reciprocal effects model has gained cross-cultural support for a vast range of students, yet the work of Liou (2014) and Szumski and Karwowski (2015) suggest that this model may not be observed for students with mild intellectual disabilities, or low achievement. Establishing if and how the reciprocal effects model operates for students with mild intellectual disabilities advances theory and has the potential to provide a malleable means to advance the academic achievement of these students who are characterised by low achievement.

Secondly, more rigorous longitudinal, large scale investigations of the BFLPE are warranted. Research to date suggests that the BFLPE does impact on the academic self-concepts of students with mild intellectual disabilities across segregated versus inclusive regular classroom environments. However the research base supporting this finding is small. This future research must be cognizant of the local dominance effect where the immediate classroom environment is privileged rather than the school environment. The classroom environments of students with mild intellectual disabilities, however, are complex and at times the factor of “classroom environment” is over-simplified as a segregated versus inclusive placement division. Feldman, Carter, Asmus and Brock’s (2016) finding that although the students with disabilities in their study had a generic placement title, students were not present for a substantial proportion of the classes in which they were enrolled, disrupts the notion of a single local dominance effect for these students.

The BFLPE has largely been examined considering *individual* student achievement in relation to *school* or *class* level achievement. Calculating a BFLPE in which the *school* is the pond and the *class* is the fish may provide an interesting examination of the impact of classroom environment, namely inclusion versus segregation for students with mild intellectual disabilities.

Thirdly, the research striving to identify potential moderators of the BFLPE has been conducted with students of average or high ability. Studies with students with mild intellectual disabilities have sought to investigate the effect of the classroom environment alone while it is likely that other student or classroom variables work in tandem with the variable of classroom environment such as perceived support or adaptive abilities. Preliminary findings suggest that the achievement and intelligence level of students with mild intellectual disabilities may serve as a moderating factor (Szumski & Karwowski, 2015), yet without the adoption of sophisticated research designs this vital question remains unanswered.

Implications for Practitioners

Both the quality and quantity of research regarding academic self-concepts of students with mild intellectual disabilities must be strengthened as a priority to be able to inform and influence sound educational practice. Practitioners are encouraged to consider implications

emerging from the limited research considering these constraints. Nonetheless, this chapter offers the following counsel for practitioners working directly to facilitate the positive psycho-educational development of students with mild intellectual disabilities.

The reciprocal effects model clearly identifies the merits of explicitly enhancing students' academic self-concepts to subsequently boost students' academic achievement. Subsequently, a plethora of teaching methods are based on the systematic encouragement of students, provision of feedback on individual progress, and maximising opportunities for success (Lüdtke, et al., 2005; Ninot & Maïano, 2007). Of the limited research that has been conducted with students with mild intellectual disabilities, results suggest that the relationship between academic self-concepts and academic achievement may be more complex than the reciprocal effects model proposes. While Ju, Zhang, and Katsiyannis (2013) concluded that the reciprocal effects model does exist for students with mild intellectual disabilities, Liou (2014) and Szumski and Karwowski (2015) challenged if this is indeed the case.

The lack of clarity surrounding the relationship between academic self-concepts and academic achievement for students with mild intellectual disabilities encourages practitioners to consider the following practices. If the reciprocal effects model does exist for these students, then deliberate pedagogical and curricula strategies to elevate a malleable academic self-concept will be very important for students with mild intellectual disabilities who would benefit greatly from the subsequent elevation of academic achievement. If the reciprocal effects model is found to not operate for students with mild intellectual disabilities, is it enough to seek to elevate academic self-concepts as a desirable outcome in itself? Most practitioners would argue this is the case. On the other hand, Ninot and Maiano (2007) advise that cultivating inaccurate elevated self-perceptions in students with intellectual disabilities is problematic as it is an important developmental signpost to be able to conduct realistic self-assessments necessary for independent life as an adult.

Inclusive education is now a philosophy widely adopted internationally. Although recognised as a complex educational approach, a core feature of inclusive education is the education of students with disabilities, including those with mild intellectual disabilities, within the regular classroom environment with peers of mixed abilities. Practitioners and educational leaders need to be cognizant of the potential resulting detrimental impact of inclusive education on the academic self-concepts of students with mild intellectual disabilities, as predicted by the BFLPE. The BFLPE proposes that the placement of students with mild intellectual disabilities in regular classroom environments with peers of mixed abilities will lead to a reduction in the academic self-concepts of students with mild intellectual disabilities. Although the empirical evidence is relatively small, the theoretical predictions alone warrant substantial consideration by practitioners. What changes in educational practices should occur if this is indeed the case? Recommendations are difficult to offer when the research identifying potential moderators is yet to emerge.

Still, we are certain that this chapter does not seek to endorse that the BFLPE be used as an argument against inclusive education. We do, however, campaign that this potential negative outcome of placement in an inclusive environment be recognised and solutions tested empirically to best support positive psycho-educational development within these learning environments. Whilst Salchegger (2016) proposes that schools should structure teaching and learning in a way that limits the BFLPE, empirical studies do not provide confidence that classroom practices can mitigate the occurrence of the BFLPE (e.g., Lüdtke, et al., 2005). Dijkstra et al. (2008) advise that, given the robust evidence that the occurrence of the BFLPE cannot be diminished by individual or contextual factors, educators are encouraged to seek to

help students cope with the negative effects of social comparison. No empirical studies are available to provide guidance on how this can be achieved with students with mild intellectual disabilities, yet Dijkstra et al. (2008) recommend that discussing the advantages and disadvantages of social comparison and valuing all types of achievement may be beneficial.

Finally, practitioners and educational leaders are encouraged to actively partner with researchers so that the research evidence in this area is large and sophisticated enough to provide useful recommendations to inform practice. This partnering must surpass simple participation and extend to the co-construction of critical questions that research must answer in this under-researched yet vitally important line of inquiry. Although the development of a strong research base will require time and investment, the future generations of students with mild intellectual disabilities are set to reap the rewards.

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