

Running head: Self-Concept, Youth, and Intellectual Disabilities

Self-Concept Research with School-Aged Youth with Intellectual Disabilities: A Systematic Review

Christophe Maïano^{1,2,3}, Sylvain Coutu², Alexandre J. S. Morin³, Danielle Tracey⁴, Geneviève Lepage²,
Grégory Moullec^{2,5,6}

¹ Cyberpsychology Laboratory, Department of Psychoeducation and Psychology, Université du Québec en Outaouais (UQO), Gatineau, Canada.

² Department of Psychoeducation and Psychology, Université du Québec en Outaouais (UQO), Saint-Jérôme, Canada.

³ Substantive-Methodological Synergy Research Laboratory, Department of Psychology, Concordia University, Montréal, Canada.

⁴ School of Education, Western Sydney University, Sydney, Australia.

⁵ Public Health School, Department of Social and Preventive Medicine, Université de Montréal, Montréal, Canada

⁶ Research Center, Centre intégré universitaire de santé et de services sociaux du Nord-de-l'Île-de-Montréal, Montréal, Canada

Acknowledgements: The preparation of this systematic review was supported by grants from the Social Sciences and Humanities Research Council of Canada (430-2012-0091, 435-2014-0909) awarded to the first, third, and fourth authors, and the Australian Research Council (DP140101559) awarded to the first, third and fourth authors. The authors want to thank Stéphane Bouchard for his comments on a previous draft of this article.

Conflict of interest: No conflict of interest has been declared.

Corresponding author: Christophe Maïano, Université du Québec en Outaouais, Campus de Saint-Jérôme, Département de Psychoéducation et de Psychologie, 5 rue Saint-Joseph, Saint-Jérôme, Québec J7Z 0B7, email: christophe.maiano@uqo.ca

This is the prepublication version of the following manuscript:

Maïano, C., Coutu, S., Morin, A. J. S., Tracey, D., Lepage, G., & Moullec, G. (2018). Self-concept research with school-aged youth with intellectual disabilities: A systematic review. *Journal of Applied Research in Intellectual Disabilities*. Early view. doi: 10.1111/jar.12543

© 2018. This paper is not the copy of record and may not exactly replicate the authoritative document published in *Journal of Applied Research in Intellectual Disabilities*.

Abstract

Background. Research on the self-concept of youth with intellectual disabilities (ID) has not been summarized in more than four decades. The present systematic review addresses this gap.

Method. A systematic literature search was performed in nine databases and 21 studies, published between 1979 and 2017, met our inclusion criteria.

Results. Significant differences between the self-concepts of youth with ID and typically developing (TD) youth were found in: (a) cognitive-academic self-concept in disfavor of youth with ID; (b) global self-concept and cognitive-academic self-concept in disfavor of children with ID; and (c) global, behavioral, and cognitive-academic self-concept in disfavor of youth with ID schooled in a special class. Additionally, except for age, intellectual functioning and school placement, no significant relations were found between the self-concept dimensions and academic achievement and sex.

Conclusion. Studies on self-concept research with school-aged youth with ID have several weaknesses that need to be advanced in future research.

Keywords: academic achievement, age, correlates, intellectual functioning, school placement, sex

Self-concept represents one of the most ancient and fundamental constructs in social sciences (Byrne, 2002; Craven & Marsh, 2008; Marsh, Martin, Yeung, & Craven, 2017). Its longevity and importance in the scientific literature can be explained by the fact that “*self-concept not only is a desirable outcome in many psychological and educational situations but also is often posited as a mediating variable that facilitates the attainment of other desired outcomes, such as academic performance and social competence*” (Byrne, 2002, p. 897). However, although the self-concept construct has been extensively examined, no clear and universally accepted definition was available until the seminal work of Shavelson, Hubner, and Stanton (1976). These authors defined self-concept as the perceptions that individuals have of themselves, which are formed through their experiences with their environment, and influenced by reinforcements from the environment and evaluations of significant others (Shavelson et al., 1976). These self-perceptions refer to individuals’ own evaluation of their confidence, self-worth, competence, and ability in general (global self-concept) or in specific academic (e.g., English, history, math, science) and non-academic domains (e.g., emotional, physical, social). These self-perceptions are expected to influence the way people act, and in turn, these actions influence how they perceive themselves in these various domains (Shavelson et al., 1976). For Shavelson et al., self-concept is a multidimensional and hierarchical construct, best represented as a pyramid. In this pyramid, global self-concept (also named global self-esteem) is positioned at the top and more specific dimensions are located at the next level, such as the academic self, the emotional self, and the social self. In this model, global self-concept is seen as more stable, whereas the more specific dimensions are seen as more malleable and situation-specific (Shavelson et al., 1976).

Self-Concept and School-Aged Youth with Intellectual Disabilities

Since the middle of the 20th century, many scholars have studied the self-concept of school-aged youth with intellectual disabilities (ID). More specifically, their research has focused on: (1) self-concept differences between school-aged youth with ID and typically developing (TD) youth; (2) the effects of school placement on their self-concept; and (3) correlates of self-concept. Research findings in relation to these three themes have often been reviewed in the 70s and 80s. Schurr, Joiner, and Towne (1970) published the first literature review (1960 to 1967) on these topics. These authors showed that among the rare studies available, very few had examined the differences between youth with ID and TD youth, and that their results were at best inconclusive. Similarly, the studies examining the effects of school placement on self-concept were limited, and their results inconsistent. Finally, the reviewed studies confirmed that school-aged youth with ID reporting more positive self-concepts were also more likely to have a higher level of academic achievement. A second review (from 1954 to 1972), conducted by Lawrence and Winschel (1973), essentially reached the same conclusions as Schurr et al. (1970) in terms of self-concept comparisons between youth with ID and TD youth, but added that “[...] *segregation does not appear to contribute to positiveness of self-concept among the retarded, and greater degrees of segregation may be relatively less positive in effect.*” (p. 315). Lastly, Lawrence and Winschel noted that higher intellectual quotient (IQ) scores or academic achievement levels tended to be significantly related to higher levels of self-concept. However, no consistent relations were found between self-concept levels and youth’s sex or ethnic origin. Finally, the sole study examining age differences showed a significant positive increase in self-concept levels as a function of chronological age. In a final review (1969 to 1979) focusing specifically on the effects of school placement on the self-concept of school-aged youth with ID, Luftig (1982) concluded that “[...] *the results appear to be inconclusive with some studies indicating advantages in special class placement while others support a mainstreamed environment.*” (p. 53).

To our knowledge, no English-language publication has reviewed the literature available on the three aforementioned themes since the 80s (Lawrence & Winschel, 1973; Luftig, 1982; Schurr et al., 1970). This lack of synthesis is worrying given that during this period, the theory and measurement of self-concept has changed significantly. Findings presented in previous reviews were limited given they largely adopted a unidimensional model of self-concept thus not accounting for the specific dimensions of self-concept (e.g., academic, cognitive, physical, social); and they did not investigate the developmental trajectories of self-concept by considering age categories (children, adolescents, or mixed) of participants with ID. At the same time, many changes have been implemented in regards to school policies, laws, and

interventions for this population, not all of which were systematically connected to this increase in knowledge, and many of which could have impacted the self-concepts of youths with ID. All of these changes suggest that an updated review of research conducted in this area might be important in order to provide further guidance on how best to encourage the development of strong self-concepts among this vulnerable population.

Objectives of the Systematic Review

With the present article, we aim to fill the gap in the literature by conducting a systematic review of research published over the last four decades or in press and focusing on the various dimensions of self-concept among school-aged youth with ID. This updated synthesis should be useful to scholars, educators, teachers, and school policy makers to pinpoint targets for intervention and propose adapted actions promoting the development of positive self-concepts for youth with ID. The purpose of this systematic review is twofold. The first objective is to summarize the empirical studies comparing the self-concept level of school-aged youth with ID with that of TD youth, while accounting for participants' age (children, adolescents, or mixed) and type of school placement (regular class, special class in a regular school, special school). The second objective is to summarize the findings of empirical studies that have looked at the relations between the self-concepts of youth with ID and their level of academic achievement or performance, age (chronological, developmental, mental), sex, intellectual functioning (ID level, IQ scores), and school placement (regular class, special class in a regular school, special school).

Method

Sources of Information and Search Strategy

A systematic search of the potentially relevant studies, published between 1 January 1979 and 17 June 2017, was conducted in nine electronic databases. A simultaneous search was performed in seven of them (Academic Search Complete, CINAHL Plus with Full-Text, Education Source, ERIC, Medline with Full-Text, Psychology and Behavioral Sciences Collection, and SocINDEX) via the EBSCO database. The other two electronic searches were conducted in the PsycARTICLES (including PsycINFO) and Scopus databases. The identification of potentially relevant studies was conducted using three groups (Gr.) of search terms: (Gr. 1) "intellectual* dis*" OR "mental* retard*" OR "developmental dis*" OR "educable mentally retarded"; AND (Gr. 2) "self-concept*" OR "self-perception*" OR "self-image*" OR "self-confidence" OR "self-esteem" OR "perce* competen*"; AND (Gr. 3) child* OR adolescen* OR student* OR youth*. These groups were combined and systematically researched in the title-abstract-keywords of the articles indexed in the databases. Finally, potentially relevant studies were also hand-searched in the reference lists of the articles included in the systematic review, as well as in the manuscripts citing the reviewed studies.

Inclusion Criteria

Studies were screened for eligibility using the following inclusion criteria. First, participants had to present with an ID. Studies including participants with multiple disabilities were also considered eligible if information on self-concept was separately presented for the subsample of youth with ID. Additionally, studies only focusing on a specific subpopulation of youth with ID (e.g., autism spectrum disorder, Down syndrome, Prader-Willi, Williams syndrome) were excluded. Although these participants may present with an ID, they also present additional diagnostic criteria which differentiates them from youth with a simple diagnosis of ID (American Psychiatric Association, 2013). In fact, it is likely that the specific characteristics (e.g., differential behavioral functioning, social participation) of these subpopulations may influence their degree of self-awareness and their self-views in a way that is unrelated to their ID.

Second, participants had to be school-aged (5 to 22 years old according to the country's school policy). Studies focusing on mixed samples of adolescents and adults with ID were considered relevant if participants' mean age was lower than 18, or if results were available for participants under the age of 22.

Third, studies were considered as eligible if they included a measure of global self-concept and/or a measure of one of the following self-concept dimensions: academic, behavioral, cognitive, physical, physical appearance, and/or social. For the purposes of this review, the following terms were considered to be synonymous with self-concept: self-perception, self-image, self-confidence, and self-esteem. Because very few studies focused on more specific sub-dimensions of the academic self-concept (e.g.,

reading, writing, spelling, and math), those only focusing on these sub-dimensions were not considered to be eligible.

Fourth, studies were identified as relevant if their main objective was to examine differences in self-concept dimensions between youth with ID and TD youth, or the correlations between self-concept dimensions and the following variables for youth with ID: academic achievement or performance, age (i.e., chronological, developmental, mental), intellectual functioning (i.e., ID level, IQ scores), sex, and school placement. For this reason, validation studies of self-concept measures were not considered as eligible. In addition, when the same sample or part of it was used in different publications, only one study was included.

Finally, case-control, cohort, or cross-sectional studies written in English and published or in press in a peer-reviewed journal were considered relevant. Non-original studies (i.e., comments, reviews, and theoretical papers), case studies, conference proceedings, and book chapters were excluded.

Eligibility of the Relevant Studies

The eligibility of the relevant studies was determined following the suggestion of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Statement (PRISMA; Liberati et al., 2009). First, the first two authors separately assessed the title and abstract of the studies found through electronic or hand search. Second, the same authors separately assessed the eligibility of the studies selected in the previous step based on their full texts. During this process, each author's selection was discussed until a consensus was obtained.

Information Collected from the Reviewed Studies

For each selected study, the first two authors separately collected information in the full text article and they discussed their results to resolve any disagreements. The information collected were the following: (a) country; (b) design (cohort, cross-sectional, case control); (c) recruitment setting (school and institution); (d) type of school placement (regular class, special class in a regular school, special school); (e) type of age samples (children, adolescents, mixed); (f) characteristics of the participants with ID (sample size, percentage of boys, age/grade range, ID level); (g) self-concept questionnaires used (e.g., Pictorial Scale and Social Acceptance for Children, Piers-Harris Children's Self-Concept Scale, Self-perception Profile for Children); (h) dimensions of self-concept assessed (e.g., academic self-concept, behavior self-concept, global self-concept); (i) inclusion of a TD sample (yes or no, sample size); (j) comparison between participants with ID and TD participants; and (k) types of correlates (e.g., academic achievement, chronological age, ID level, IQ, school placement, sex).

Quality Assessment of the Reviewed Studies

The methodological quality of the reviewed studies was assessed using an adapted version of the quality rating scale developed by Negahban, Mazaheri, Kingma, and van Dieën (2014). The 8-item criteria are illustrated in Table 1. They measure the internal, statistical, and external validity of the studies. More specifically, the internal validity was assessed using four items focusing on the validity and reliability of the self-concept measure, the presentation of the assessment of self-concept, and the correction for confounding effect of covariates on self-concept. Statistical validity was assessed with two items focusing on whether the studies used appropriate statistical tests and had an adequate sample size. Finally, external validity of the studies was examined with two items focusing on whether sufficient information was provided about the participants' characteristics and sampling methods. The first and second authors separately assessed each study using the 8-items presented in Table 1. Their results were then reviewed and remaining disagreements were resolved by the last author.

Results

Selection of the Relevant Studies

The results of the search strategy are presented in Figure 1. The electronic and hand search identified a total of 3,075 articles. This number fell to 1,644 when the duplicates were removed. Analysis of titles and abstracts revealed that 1,575 articles did not meet the inclusion criteria. The full text of the 69 remaining articles was examined and 48 were excluded (for a full list of excluded studies, see section S1 of the supplements) because they did not meet the inclusion criterion (see Figure 1 for reasons). Finally, 21 studies published between 1979 and 2017 met the inclusion criteria and are presented in Table 2.

Characteristics of the Reviewed Studies

Sample Characteristics and Design. Three quarters of the reviewed studies were conducted in North America (Table 2). Approximately half (11/21, 52%) used a case-control design, while the others were cross-sectional (9/21, 43%) and only one was a cohort study (5%). A total of 1,661 ($M = 83$; range = 12 to 605) school-aged youth with ID were involved in these studies. They were typically recruited at school (18/21, 86%), and mainly educated in a special class, in a special school, or both. Additionally, 7/21 studies (33%) focused on children, 9/21 (43%) on adolescents-young adults, and 5/21 (24%) on both children and adolescents, and most of the participants were boys ($M = 58%$, range = 43% to 75%). Finally, even though 38% of the studies (8/21) did not document participants' ID levels, almost two thirds (8/13) of those who did include participants with a mild to moderate ID level. Information about the measure used to assess intellectual functioning was provided in only 14% (3/21) of the reviewed studies.

Questionnaires and Dimensions of Self-Concept. As shown in Table 3, 5/21 (24%) of the studies measured self-concept with the Piers-Harris Children's Self-Concept Scale (Piers, 1969), 2/21 (10%) with the Pictorial Scale and Social Acceptance for Children (Harter & Pike, 1980), 2/21 (10%) with the Self-Perception Profile for Learning Disabled Students (Renick & Harter, 1988), and the 12 remaining studies used different questionnaires. The most examined dimensions were the global (15/21, 71%) and social (10/21, 48%) self-concepts. One third of the studies examined the following self-concept dimensions: academic, behavioral, cognitive, cognitive-academic, physical, and appearance.

Type of analyses. As illustrated in Table 3, 11/21 studies (52%) compared the self-concept of school-aged youth with ID to that of TD youth. Additionally, 16/21 (76%) studies examined correlates of self-concept for youth with ID, mainly focusing on age ($n = 9$) and sex ($n = 8$). By contrast, a minority of studies focused on achievement/performance ($n = 3$), intellectual functioning ($n = 4$), and school placement ($n = 1$).

Comparison Between Youth with ID and TD Youth

Half (11/21) of the reviewed studies (Table 4) compared the level of self-concept reported by youth with ID and TD youth. They focused on global self-concept and the six following specific self-concept dimensions: behavioral, cognitive, cognitive-academic, physical appearance, physical, and social.

Global Self-Concept. Nine studies compared the level of global self-concept between youth with ID and TD youth (Table 4). Their results were mixed and inconclusive. Indeed, half of the studies failed to find significant differences, whereas the other half reported a significantly higher level of global self-concept among TD youth.

Age samples. As illustrated in Table 4, the three studies (100%) focusing on *children* revealed a higher level of global self-concept among TD youth. However, those focusing on *adolescents* found no significant differences. Finally, studies of mixed age samples (*children-adolescents*) reported either a higher level of global self-concept among TD youth or a lack of differences.

School placement. Five studies examined differences in global self-concept between TD youth and youth with ID attending a *special class*. Among these, four (80%) reported a higher level for TD youth, whereas one (20%) did not find a significant difference (Table 4). No differences were found in the two sole studies focusing on youth with ID attending a *special school* or a mixed school placement.

Behavioral Self-Concept. As shown in Table 4, the results of the four studies having compared the level of behavioral self-concept between youth with ID and TD youth are mixed and inconclusive. Two (50%) studies did not find between-group differences, whereas the other two (50%) noted a higher level of behavioral self-concept among TD youth.

Age samples. The sole study focusing on *children* showed a higher level of behavioral self-concept among TD youth, while the one focusing on *adolescents* did not find any differences between those with ID and TD youth (Table 4). Additionally, studies with mixed age samples showed either a significantly higher level of behavioral self-concept among TD youth or no difference.

School placement. Three studies examined differences in behavioral self-concept between TD youth and youth with ID attending a *special class*. Two (67%) reported a higher level for TD youth,

whereas one (33%) did not find a significant difference (Table 4). No differences were observed in the sole study examining these differences in youth with ID attending a *special school*.

Cognitive Self-Concept. The single study having compared the level of cognitive self-concept between adolescents with ID attending a *special school* and TD youth found no significant difference (Table 4).

Cognitive-Academic Self-Concept. As illustrated in Table 4, three studies compared the level of cognitive-academic self-concept between youth with ID and TD youth. Of these studies, two (67%) showed a significantly higher level of cognitive-academic self-concept among TD youth, whereas the other one (33%) did not find any difference.

Age samples. The sole study focusing on *children* reported a higher level of cognitive-academic self-concept among TD youth (Table 4). Results of studies of mixed age samples were varied and inconclusive.

School placement. As illustrated in Table 4, three studies examined differences in cognitive-academic self-concept between TD youth and youth with ID attending a *special class*. Two (67%) reported a higher level for TD youth, whereas one (33%) did not find a significant difference. No differences were observed in the sole study examining these differences in youth with ID attending a *special school*.

Physical Appearance Self-Concept. Four studies compared the level of physical appearance self-concept between youth with ID and TD youth (Table 4). These studies focusing on samples of *children* attending a *special school*, and *adolescents* or *children-adolescents* (Beck et al., 1982; Jones, 1985) attending a *special class* did not find any significant difference.

Physical Self-Concept. The sole study having compared the level of physical self-concept between *adolescents* with ID attending a *special school* and TD youth did not find any significant difference (Table 4).

Social Self-Concept. Five studies compared the level of social self-concept between youth with ID and TD youth. Four (80%) failed to find significant differences, whereas one reported a higher level of social self-concept among TD youth (Table 4).

Age samples. Studies focusing on *children* or *adolescents* did not show significant differences between TD youth and youth with ID (Table 4). However, among the three focusing on mixed age samples, two (67%) did not show significant differences, whereas one (33%) showed a significantly higher level of social self-concept among TD youth.

School placement. As illustrated in Table 4, three studies examined differences in social self-concept between TD youth and youth with ID attending a *special class*. Of these, two did not show a significant difference (67%), whereas one showed a significantly higher level of social self-concept among TD youth (33%). Finally, the two studies examining differences in social self-concept between TD youth and youth with ID attending a *special school* did not show a significant difference (Table 4).

Correlates of Self-Concepts Among Youth with ID

Academic Achievement/Performance. As illustrated in Table 5, none of the reviewed studies found a significant association between academic achievement/performance and cognitive, physical appearance, and social self-concepts. However, findings on academic self-concept were mixed and inconclusive. Indeed, one study found either a positive relation with the parent report of academic achievement or a negative one with the youth's report of academic achievement (Table 5). Whereas another one did not find any relation between academic self-concept and academic achievement (Table 5).

Age. As illustrated in Table 5, nine studies examined the relations between the chronological or mental age and self-concept of youth with ID.

Chronological age. Six studies examined the relation between chronological age and global self-concept. Their results are mixed and inconclusive. As illustrated in Table 5, no relations were found in four (67%) studies, whereas two (33%) found either a positive or a negative relation. Additionally, the sole study having examined the relation between the chronological age of youth with ID and their physical appearance self-concept, showed a significantly negative relation (Table 5). Moreover, among the three studies having examined the relation between chronological age and physical self-concept, two (67%)

showed no significant relation, whereas one (33%) showed a negative relation. Finally, no significant relations were found between chronological age and behavioral self-concept, cognitive self-concept, and social self-concept (Table 5).

Mental age. As illustrated in Table 5, none of the reviewed studies found significant relations between mental age and behavioral, cognitive, physical appearance, physical, and social self-concepts. Additionally, among the four studies having examined the relation between mental age and global self-concept, no relation was found in three (75%), whereas one (25%) showed a positive relation.

Sex. Nine studies examined sex-based differences in global self-concept (Table 5). Of these, seven (78%) did not find any significant differences, whereas two showed either a positive (i.e., boys reported higher levels of global self-concept than girls) or a negative relation (i.e., girls reported higher levels of global self-concept than boys). Finally, none of the reviewed studies found significant relations between sex and academic, behavioral, physical appearance, physical, and social self-concepts.

Age x Sex. Two studies examined the relations between the chronological age of *children* with ID and global and physical self-concepts according to sex subgroups (Table 5). No differences were found for global self-concept (Table 5). However, findings showed lower levels of physical self-concept in older girls.

Intellectual Functioning. Four studies examined the relations between IQ/ID level and global self-concept. Their results are mixed and inconclusive. Indeed, two of these studies (50%) showed a significant positive relation (i.e., higher global self-concept scores in youth with higher IQ or higher intellectual functioning), whereas two (50%) did not find any association. Additionally, one study found a significant positive relation between intellectual functioning and physical appearance self-concept (higher scores in youth with higher intellectual functioning). Finally, none of the reviewed studies found significant relations between intellectual functioning and behavioral, cognitive, physical, and social self-concepts (Table 5).

School Placement. As illustrated in Table 5, the sole study having examined the role of school placement on academic self-concept showed that youth with ID schooled in a *segregated class* tended to present higher levels of academic self-concept compared to those schooled in a *non-segregated class*.

Quality Assessment of the Reviewed Studies

Internal Validity. The mean quality score of internal validity was 2.3/5 ($SD = 1.0$). Nine (43%) of the studies (Bybee et al., 1990; Carroll et al., 1984; Jones, 2012; Leahy et al., 1982; Mueller & Prout, 2009; O'Byrne & Muldoon, 2017; Stager et al., 1983; Szumski & Karwowki, 2015; Yun & Ulrich, 1997) met more than half of the internal validity criteria. More precisely, as illustrated in Table 6, the most frequently satisfied criteria were a clear presentation of the self-concept assessment procedure (16/21, 76%) and the incorporation of a correction for the confounding effect of sex (13/21, 62%). However, only a few studies met the criteria related to validity (5/21, 24%) and reliability (5/21, 24%) of the self-concept measure, and the incorporation of a correction for the confounding effect of age (9/21, 43%).

Statistical Validity. The mean quality score of statistical validity was 0.95/2 ($SD = 0.2$). More precisely, all the reviewed studies, except Blackbourn and Blackbourn (1987), satisfied the criterion related to the use of appropriate statistical tests. However, none had determined their sample size by a power statistical test.

External Validity. The mean quality score of internal validity was 4.5/7 ($SD = 1$). All but five studies (Beck et al., 1982; Blackbourn & Blackbourn, 1987; Chovan & Morrison, 1984; Jones, 1985; O'Such et al., 1979) satisfied more than half of the external validity criteria. More precisely, in the reviewed studies, the most frequently satisfied criteria were adequate information regarding age/grade (20/21, 95%), sex (15/21, 71%), level of intellectual disability (13/21, 62%), recruitment setting (17/21, 81%), and school placement (20/21, 95%). However, only 24% (5/21) and 19% (4/21) of the studies met the criteria related to adequate information regarding comorbidity and sampling method, respectively.

Discussion

Comparison of Self-Concept Levels Between Youth with ID and TD Youth

Over the last four decades, 11 studies assessed as eligible compared the level of self-concepts between school-aged youth with ID and TD youth. Reviewed studies generally showed a lack of

significant differences between youth with ID and TD youth in terms of physical appearance and social self-concept, and mixed and inconclusive results for behavioral self-concept. However, findings from two reviewed studies showed that youth with ID tended to have significantly lower level of cognitive-academic self-concept than TD youth.

Additionally, similarly to previous literature reviews (Lawrence & Winschel, 1973; Schurr et al., 1970) results from the reviewed studies examining global self-concept among youth with ID were mixed and inconclusive. Nevertheless, findings on global self-concept significantly differed when the samples' age categories (children or adolescents) were accounted for. Studies among adolescents showed a lack of significant differences in global self-concept between adolescents with ID and TD adolescents. Additional research, realized on a larger representative sample, also supported the idea that self-concept levels are similar for youth with low, versus moderate to high, levels of cognitive abilities (e.g., Morin et al., 2017). As for studies among children, they revealed significantly lower levels of global self-concept for those with ID. Interestingly, the very few (one each) studies focusing on the behavioral or cognitive-academic self-concepts similarly reported lower levels among children with ID relative to TD children.

It could be hypothesized that children with ID are more susceptible to have lower global self-concept, when compared to TD children, because social comparison processes may be amplified at the beginning of schooling (Festinger, 1954). These results suggest that, during this period, children with ID may come to internalize and understand their difference better (e.g., Marsh, 2007). The summarized studies also showed that youth with ID schooled in a *special class* in a regular school, rather than *special schools*, tended to present significantly lower levels of global, behavioral, and cognitive-academic self-concepts when compared to TD youth. This finding does not, however, allow us to draw inferences about the impact of school placement upon the self-concept of youth with ID as it involves no direct comparison with youth with ID who reside in different school placements. Further research into these observations, and into the social comparison mechanisms proposed to be at play, are clearly warranted. Finally, the present review shows that a limited number of studies have examined the levels of cognitive or cognitive-academic and physical self-concepts between youth with ID and TD youth. Synthesis of these studies' findings were inconsistent and inconclusive across samples and even while samples' age categories and school placement were accounted for.

Correlates of Self-Concepts Among Youth with ID

Over the last four decades, 16 studies, assessed as eligible, examined relations between self-concept and academic achievement/performance, age, sex, intellectual functioning, and school placement. In contrast to previous reviews (Lawrence & Winschel, 1973; Schurr et al., 1970), none of the studies reviewed here examined the relations between the academic achievement/performance and global self-concept. Since the publication of these earlier reviews, self-concept has been recognized as multidimensional, and recent research with TD youth has demonstrated that academic self-concept tends to present a positive reciprocal relation with academic achievement (e.g., Guo et al., 2015; Marsh et al., 2018). The present systematic review reveals that results of studies focusing on the academic self-concept remain inconclusive for youth with ID. Additionally, there was a lack of relation between their cognitive, physical appearance, or social self-concepts and their academic achievement/performance. Given the limited number of studies, however, the relation between academic achievement/performance and global and specific dimensions of self-concept of youth with ID remains an open question.

The present systematic review reveals a lack of relations between the age (chronological or mental) of youth with ID and various dimensions of their self-concepts (global self-concept, behavioral self-concept, cognitive self-concept, physical self-concept, and social self-concept). Nevertheless, one study found a negative relation between chronological age and physical appearance self-concept. Although findings with TD youth are mixed, there is a consensus that as children mature, self-concepts may decline during the transition into adolescence (Harter, 1999; Wigfield et al., 1991). In contrast to studies among TD youth and Lawrence and Winschel's (1973) review showing inconsistent findings, the studies included in the present systematic review (except for physical appearance self-concept) have not found such a relation. However, the present finding remains preliminary as it is based on a limited number of studies.

Additional findings from the reviewed studies showed a lack of relations between sex and the global, cognitive, physical, and social self-concepts of youth with ID. Self-concept research with TD youth has reported that girls tend to present lower levels global self-concept than boys (Zimmerman, Copeland, Shope, & Dielman, 1997), and that whereas boys tend to report higher physical self-concepts, girls tend to report higher social self-concepts (Shapka & Keating, 2005). In contrast to these findings and with Lawrence and Winschel's (1973) review (showing inconsistent association with sex), the present review reveals a similarity in self-concept levels between boys and girls with ID. However, given the limited number of studies examining this relationship, this finding should be interpreted with caution.

The present systematic review shows inconclusive results from studies of the relation between ID level or IQ and global self-concept. This contrasts with Lawrence and Winschel's (1973) review which showed a positive relation between IQ and self-concept. Similarly, the studies reviewed herein examining behavioral and physical appearance self-concepts remain inconclusive. Nevertheless, one study found a positive relation between intellectual functioning and physical appearance self-concept. Finally, there was a lack of significant relations between the intellectual functioning (ID level or IQ) of youth with ID and their levels of behavioral, cognitive, physical, and social self-concepts. However, the above results should be considered preliminary as they are based on a limited number of studies.

Finally, very few studies have examined the relations between the various dimensions of self-concept and the type of school placement of youth with ID. In fact, a single study met the inclusion criteria for this review, and revealed higher academic self-concepts for youth with ID schooled in *segregated classes*. This finding is in contrast with the inconclusive results found in the previous reviews of Schurr et al. (1970), Luftig (1982), and Lawrence and Winschel (1973). With the international rise of inclusive education where youth with ID are increasingly educated alongside TD youth, relations between self-concepts and school placements should be more thoroughly explored.

Limitations and Directions for Future Studies

Although the present review provides valuable information, the present findings should be interpreted with caution given several limitations. First, the strength of the evidence presented in this review is based on a simple count of self-concept studies showing a difference or relation compared to the number not showing that effect. Therefore, it is possible that the present findings could have been affected by factors such as group size or by the heterogeneity in the studies' characteristics. Unfortunately, information required to obtain more precise effects size measures was lacking from the majority of the reviewed studies. Future research conducted in this area should clearly focus on improving the quality and completeness of their reporting practices in order to help improve future research reviews.

Second, the generalizability of the present findings is questionable given that three quarters of the studies were conducted in North America. It is therefore impossible to determine whether similar patterns of results would be found in other regions and cultures (e.g., African, Eastern Mediterranean, European, South-East Asian, Western Pacific). Future self-concept research among youth with ID should be more thoroughly conducted in these regions.

Third, several of the reviewed studies did not document participants' ID level, age range, sex, and additional diagnoses (autism spectrum disorder or genetic syndromes such as Down syndrome, Fragile X, etc.). Therefore, interpretation of the findings from the reviewed studies in light of the various studies' sample characteristics was limited. Considering this limitation, it appears important for future research to more thoroughly report participants' characteristics.

Fourth, none of the reviewed studies (except Mueller & Prout, 2009) relied on a longitudinal design, precluding the examination of self-concept trajectories among youth with ID and their stability or change over time. Additionally, it is unknown whether these trajectories may differ when the participants' characteristics (e.g., academic achievement/performance, additional diagnoses, ID level, sex, school placement) are accounted for as covariates. Therefore, future studies following a longitudinal design are needed to provide clear answers to these questions.

Fifth, although the present review relied on the widely accepted notion that higher self-concepts are desirable for a variety of outcomes, across populations and life settings (Byrne, 2002; Guo et al., 2015), it appears important for future research and reviews to more carefully assess the differential impact

of the dimensions of self-concept on various aspects of functioning, and how this impact differs across populations of youth with ID and TD youth.

Sixth, the reviewed studies have used several different self-concept questionnaires and only a few of them have demonstrated validity for youth with ID. Additionally, only a few of the reviewed studies have provided information about the internal consistency of their self-concept measure for their study's sample. Moreover, despite the reviewed studies having used multidimensional self-concept questionnaires, they mostly focused on global and social self-concepts. Therefore, the factor validity and reliability or appropriateness of the self-concept measures for youth with ID may be questionable. In addition, the self-concept level of youth in most of the self-concept dimensions remains insufficiently explored. It is important for future self-concept research among youth with ID to rely on multidimensional questionnaires validated or specifically adapted for individuals with ID (e.g., Kowsalya, Venkat Lakshmi, & Suresh, 2012; Maïano, Bégarie, Morin, & Ninot, 2009; Marsh, Tracey, & Craven, 2006) or to provide more information on the appropriateness or factor validity and reliability of their self-concept measure.

Seventh, it is important to keep in mind that the methodological quality of the reviewed studies was generally "low". Major methodological weaknesses were related to the reliability and validity of self-concept measures, correction for the confounding effects of age, sample size limitations, and the adequacy of the information regarding comorbidity and sampling. The present conclusions are likely to have been impacted by this low level of methodological quality. Clearly, improving the methodological quality of self-concept research among youth with ID should be a priority in future research.

Finally, it is noteworthy that not a single study reported higher self-concepts for youth with ID compared to TD youth. Along with the prevalent and persistent methodological shortcomings, this review highlights that the dearth of research on the self-concept of youth with ID has hindered both the development of theoretical knowledge and educational practices for youth with ID. With educational policies across the world rapidly shifting over the past three decades, it is crucial to understand the levels and correlates of self-concepts so that policymakers and educators can ultimately improve the self-concepts of youth with ID.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Beck, M. A., Roblee, K., & Hanson, J. (1982). Special education/regular education: a comparison of self-concept. *Education, 102*, 277-279.
- Blackbourn, J. M., & Blackbourn, V. (1987). Self-concepts of young handicapped children: An analysis of race and sex. *Perceptual and Motor Skills, 65*, 626.
- Bybee, J., Ennis, P., & Zigler, E. (1990). Effects of institutionalization on the self-concept and outerdirectedness of adolescents with mental retardation. *Exceptionality, 1*, 215-226.
- Byrne, B. M. (2002). Validating the measurement and structure of self-concept: Snapshots of past, present, and future research. *American Psychologist, 57*, 897-909.
- Carroll, J. L., Friedrich, D., & Hund, J. (1984). Academic self-concept and teachers' perceptions of normal, mentally retarded, and learning disabled elementary students. *Psychology in the Schools, 21*, 343-348.
- Chiu, L. H. (1990). Self-esteem of gifted, normal, and mild mentally handicapped children. *Psychology in the Schools, 27*, 263-268.
- Chovan, W. L., & Morrison, E. R. (1984). Correlates of self-concept among variant children. *Psychological Reports, 54*, 536-538.
- Craven, R. G., & Marsh, H. W. (2008). The centrality of the self-concept construct for psychological wellbeing and unlocking human potential: Implications for child and educational psychologists. *Educational and Child Psychology, 25*, 104-118.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*(2), 117-140.
- Fiasse, C., & Nader-Grosbois, N. (2012). Perceived social acceptance, theory of mind and social adjustment in children with intellectual disabilities. *Research in Developmental Disabilities, 33*, 1871-1880.

- Guo, J., Marsh, H. W., Morin, A. J. S., Parker, P. D., & Kaur, G. (2015). Directionality of the associations of high school expectancy-value, aspirations, and attainment: A longitudinal study. *American Educational Research Journal*, 52(2), 371-402.
- Harter, S. (1999). *The construction of the self: A developmental perspective*. New York, NY: Guilford.
- Harter, S., & Pike, R. (1980). *The Pictorial Scale of Perceived Competence and Social Acceptance for young children*. Denver, CO: University of Denver.
- Huck, S., Kemp, C., & Carter, M. (2010). Self-concept of children with intellectual disability in mainstream settings. *Journal of Intellectual and Developmental Disability*, 35, 141-154.
- Jones, C. J. (1985). Analysis of the self-concepts of handicapped students. *Remedial and Special Education*, 6, 32-36.
- Jones, J. L. (2012). Factors associated with self-concept: adolescents with intellectual and development disabilities share their perspectives. *Intellectual & Developmental Disabilities*, 50, 31-40.
- Kowsalya, D. N., Venkat Lakshmi, H., & Suresh, K. P. (2012). Development and validation of a scale to assess self-concept in mild intellectually disabled children. *International Journal of Social Sciences & Education*, 2(4), 699-709.
- Lawrence, E. A., & Winschel, J. F. (1973). Self-concept and the retarded: Research and issues. *Exceptional Children*, 39, 310-319.
- Leahy, R. L., Balla, D., & Zigler, E. (1982). Role-taking, self-image, and imitativeness of mentally retarded and nonretarded individuals. *American Journal of Mental Deficiency*, 86, 372-379.
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., . . . Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analysis of studies that evaluate health care interventions: explanation and elaboration. *PLoS Medicine*, 6, 1-6.
- Luftig, R. L. (1982). Educational placement of the retarded and self-concept functioning implications for education decision makers. *Education*, 103, 49-55.
- Maïano, C., Bégarie, J., Morin, A. J. S., & Ninot, G. (2009). Assessment of physical self-concept in adolescents with intellectual disability: Content and factor validity of the very Short Form of the Physical Self-Inventory. *Journal of Autism and Developmental Disorders*, 39(5), 775-787.
- Marsh, H. W. (2007). *Self-concept theory, measurement and research into practice: The role of self-concept in educational psychology*. Leicester, UK: British Psychological Society.
- Marsh, H. W., Martin, A. J., Yeung, A., & Craven, R. (2017). Competence self-perceptions. In A. J. Elliot., C. Dweck., & D. Yeager (Eds.), *Handbook of Competence and Motivation* (2nd edition; pp. 85-115). New York, NY: Guilford Press.
- Marsh, H. W., Pekrun, R., Murayama, K., Arens, K. A., Parker, P. D., Guo, J., & Dicke, T. (2018). An integrated model of academic self-concept development: Academic self-concept, grades, test scores, and tracking over six years. *Developmental Psychology*, 54(2), 263-280.
- Marsh, H. W., Tracey, D. K., & Craven, R. G. (2006). Multidimensional self-concept structure for preadolescents with mild intellectual disabilities: A hybrid multigroup-MIMC approach to factorial invariance and latent mean differences. *Educational and Psychological Measurement*, 66(5), 795-818.
- Moldovan, T., Moldovan, S., & Pescari, T. (2014). The specifics of self-esteem in adolescents with mental retardation. *Academica Science Journal, Psychologica Series*, 2, 33-44.
- Morin, A. J. S., Arens, A. K., Tracey, D., Parker, P. D., Ciarrochi, J., Craven, R. G., & Maïano, C. (2017). Self-esteem trajectories and their social determinants in adolescents with different levels of cognitive ability. *American Journal on Intellectual and Developmental Disabilities*, 122(6), 539-560.
- Mueller, C. E., & Prout, H. T. (2009). Psychosocial adjustment of adolescents and young adults with intellectual disabilities. *Journal of Mental Health Research in Intellectual Disabilities*, 2, 294-311.
- Nader-Grosbois, N. (2014). Self-perception, self-regulation and metacognition in adolescents with intellectual disability. *Research in Developmental Disabilities*, 35, 1334-1348.

- Negahban, H., Mazaheri, M., Kingma, I., & van Dieën, J. H. (2014). A systematic review of postural control during single-leg stance in patients with untreated anterior cruciate ligament injury. *Knee Surgery, Sports Traumatology, Arthroscopy*, *22*, 1491-1504.
- O'Byrne, C., & Muldoon, O. (2017). Stigma, self-perception and social comparisons in young people with an intellectual disability. *Irish Educational Studies*, *36*(3), 307-322.
- O'Such, T. G., Havertape, J. H., & Pierce, K. A. (1979). Group differences in self-concept among handicapped, normal, and gifted learners. *The Humanist Educator*, *18*, 15-22.
- Ottensbacher, K. (1981). An investigation of self-concept and body image in the mentally retarded. *Journal of Clinical Psychology*, *37*, 415-418.
- Piers, E. V. (1969). *Manual for the Piers-Harris Children's Self Concept Scale*. Nashville, TN: Counselor Recordings and Tests.
- Renick, M. J., & Harter, S. (1988). *Manual for the self-perception profile for learning disabled students*. Denver, CO: University of Denver.
- Schurr, K. T., Joiner, L. M., & Towne, R. C. (1970). Self-concept research in the mentally retarded: A review of empirical studies. *Mental Retardation*, *8*, 39-43.
- Shapka, D. J., & Keating, D. P. (2005). Structure and change in self-concept during adolescence. *Canadian Journal of Behavioral Science*, *37*, 83-96.
- Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research*, *46*, 407-441.
- Stager, S. F., Chassin, L., & Young, R. D. (1983). Determinants of self-esteem among labeled adolescents. *Social Psychology Quarterly*, *46*, 3-10.
- Szumski, G., & Karwowski, M. (2015). Emotional and social integration and the big-fish-little-pond effect among students with and without disabilities. *Learning and Individual Differences*, *43*, 63-74.
- Wheeler, L., & Reilly, T. F. (1980). Self-concept and its relationship to academic achievement for EMR adolescents. *Journal for Special Educators*, *17*, 78-83.
- Wigfield, A., Eccles, J.S., Mac Iver, D., Reuman, D.A., & Midgley, C. (1991). Transitions during early adolescence: Changes in children's domain-specific self-perceptions and general self-esteem across the transition to junior high school. *Developmental Psychology*, *27*, 552-565.
- Yun, J., & Ulrich, D. (1997). Perceived and actual physical competence in children with mild mental retardation. *Adapted Physical Activity Quarterly*, *14*, 285-297.
- Zimmerman, M. A., Copeland, L. A., Shope, J. T., & Dielman, T. E. (1997). A longitudinal study of self-esteem: Implications for adolescent development. *Journal of Youth and Adolescence*, *26*, 117-141.

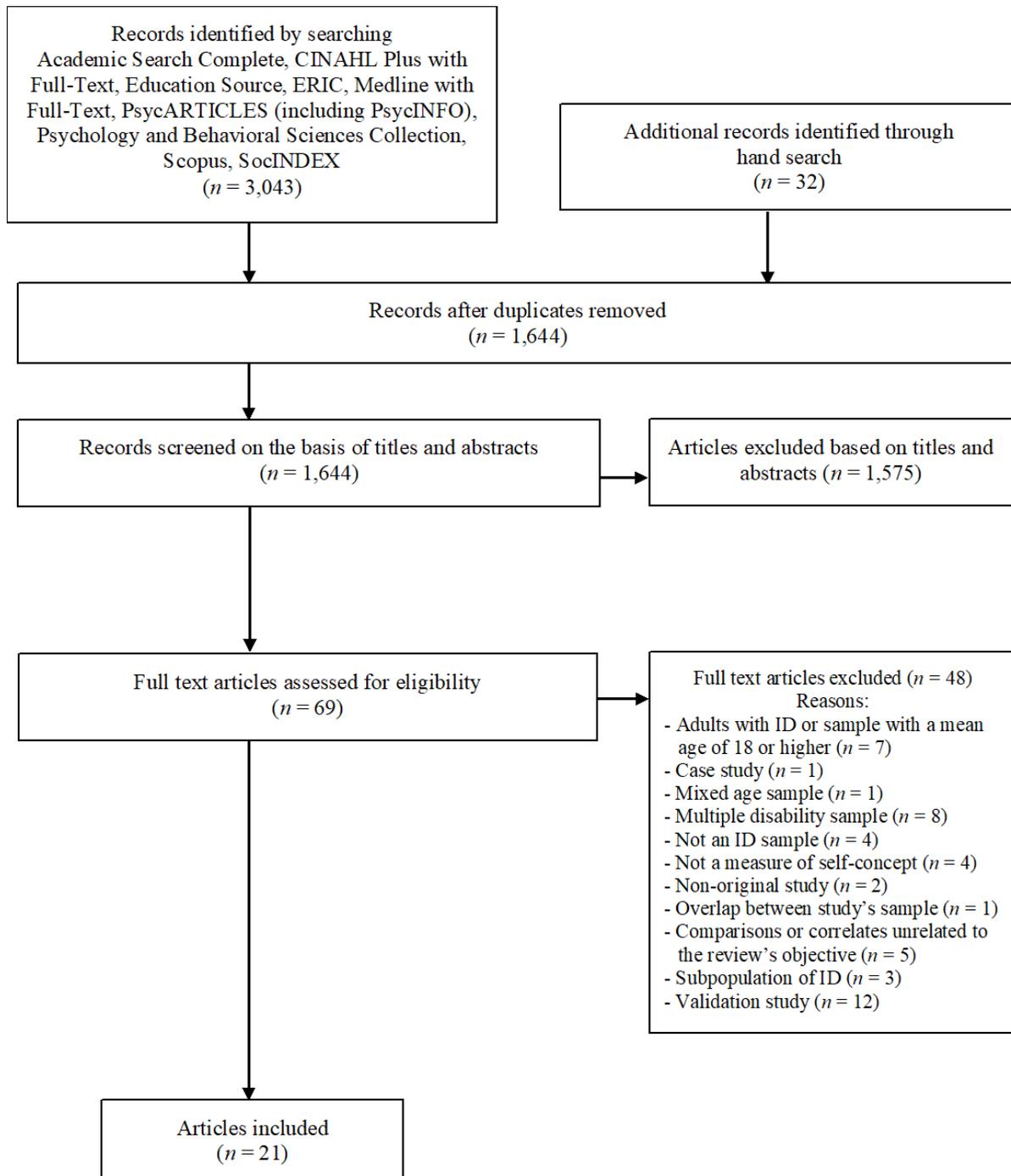


Figure 1. Results of search based on the PRISMA statement (Liberati et al., 2009)

Note. ID = intellectual disabilities

Table 1.
Criteria used for the Quality Assessment of the Reviewed Studies

Internal validity	Scoring
Validity of the self-concept measure	A positive point was assigned if the self-concept measure used has demonstrated validity for individuals with intellectual disabilities
Reliability of the self-concept measure	A positive point was assigned if the internal consistency of the self-concept measure has been estimated for individuals with intellectual disabilities
Clear presentation of self-concept assessment	A positive point was assigned if replication of the self-concept assessment is possible (e.g., instructions, context, procedure) based on the information in the article
Correction for confounding effect of covariates on self-concept	A positive point was assigned if confounders (e.g., age, sex) were taken into account, or appropriate matching on these variables was performed
Statistical validity	Scoring
The use of appropriate statistical tests	A positive point was assigned if appropriate tests were used to assess differences in self-concept measure or correlates
Adequacy of the number of participants included in the study	A positive point was assigned if the sample size was estimated by a power statistical test
External validity	Scoring
Sufficient information about the participants' characteristics	A positive point was assigned if information about age/grade, sex, level of intellectual disability, comorbidity, recruitment setting, and school placement was provided
Sampling method	A positive point was assigned if the sample was randomly selected or population-based

Note. Adapted from Negahban, Mazaheri, Kingma, and van Dieën (2014)

Table 2.*Main Characteristics of the Studies Included in the Systematic Review*

Study	Country	Design	Recruitment setting	School Placement	Age samples	Age/grade (Gr.) range	Size (N)	% of boys	ID level
Beck et al. (1982)	USA	CC	SCH	SC	Mixed	Gr. 5-8	13	54	NM
Blackbourn & Blackbourn (1987)	USA	CS	NM	NM	CHILD	Gr. 1	90	NM	NM
Bybee et al. (1990)	USA	CS	Institution	SS	ADOS	NM	46	65	MILD-MOD
Carroll et al. (1984)	USA	CC	SCH	SC	CHILD	7-12	73	52	MILD-MOD
Chiu (1990)	USA	CC	SCH	SC	CHILD	Gr. 4-5	118	61	MILD
Chovan & Morrison (1984)	USA	CC	SCH	SC	CHILD	9-12	12	NM	MILD-MOD
Fiasse & Nader-Grosbois (2012)	Belgium	CC	SCH	SS	Mixed	6.6-13.6	45	51	NM
Huck et al. (2010)	AUS	CS	SCH	RC, SC	CHILD	7-11	17	65	MILD-MOD
Jones (1985)	USA	CC	SCH	SC	Mixed	10-13	30	NM	NM
Jones (2012)	USA	CS	SCH	RC, SC	ADOS	11-20	51	75	MILD-MOD
Leahy et al. (1982)	Canada	CC	SCH	SC	Mixed	NM	24	NM	MILD-MOD
Moldovan et al. (2013)	Romania	CS	SCH	IER	ADOS	16-17	20	55	NM
Mueller & Prout (2009)	USA	Cohort	SCH	NM	ADOS	Gr. 7-12	269	43	NM
Nader-Grosbois (2014)	Belgium	CC	SCH	SS	ADOS	11-16	32	NM	MILD-MOD
O'Byrne & Muldoon (2017)	Ireland	CS	SCH	SS	ADOS	12-14	54	61	BORD-MOD
O'Such et al. (1979)	USA	CC	SCH	NM	CHILD	8-12	32	NM	NM
Ottenbacher (1981)	USA	CS	Institution	SS	ADOS	11-22	31	65	MILD-MOD
Stager et al. (1983)	USA	CC	SCH	RC, SC	ADOS	Gr. 9-12	50	49	NM
Szumski & Karwowki (2015)	Poland	CC	SCH	RS, SS	Mixed	9-13	605	59	MILD
Wheeler & Reilly (1980)	USA	CS	Institution	SS	ADOS	14-18	30	63	MILD-MOD
Yun & Ulrich (1997)	USA	CS	SCH	SC	CHILD	7-12	109	50	MILD

Note. ADOS = adolescents; AUS = Australia; BORD = borderline; CC = Case-control; CHILD = children; CS = cross-sectional; ID = intellectual disability; IER = Inclusive education centre; IQ = intellectual quotient; NM = Not mentioned; MOD = moderate; RC = regular class; RS = regular school; SC = special class; SCH = school; SS = special school; TD = typical development; USA = United States of America.

Table 3.*Measures, Comparison Groups, and Correlates of the Studies Included in the Systematic Review*

Study	Questionnaires	Dimensions of self-concept	Comparison ID vs. TD	Correlates
Beck et al. (1982)	PHCSCS ^o	GSC*, BSC, CASC ^A , PASC, SSC [⊗]	Yes (<i>N</i> = 47)	No
Blackbourn & Blackbourn (1987)	MZSCS	GSC	No	Sex
Bybee et al. (1990)	PCSC	GSC, CSC, PSC, SSC	No	CA, IQ, MA, sex
Carroll et al. (1984)	SSE	GSC*	Yes (<i>N</i> = 45)	Group x CA, group x sex, group x CA x sex
Chiu (1990)	CSEI	GSC*	Yes (<i>N</i> = 196)	Group x sex
Chovan & Morrison (1984)	PHCSCS ^o	BSC, CASC ^A , PASC, SSC [⊗]	Yes (<i>N</i> = 12)	No
Fiasse & Nader-Grosbois (2012)	PSPCSA	SSC [⊕]	Yes (<i>N</i> = 45)	CA, MA(GDA)
Huck et al. (2010)	PSPCSA	CSC	No	APERF
Jones (1985)	PHCSCS ^o	GSC*, BSC, CASC ^A , PASC, SSC [⊗]	Yes (<i>N</i> = 30)	No
Jones (2012)	SPP-C	GSC, SSC	No	MA (AVMA), sex,
Leahy et al. (1982)	SIDM	GSC [☆]	Yes (<i>N</i> = 46)	CA, group x sex, IQ, MA
Moldovan et al. (2013)	ETES	GSC, ASC*, PSC, SSC	No	Sex
Mueller & Prout (2009)	Study-made	GSC*	Yes (<i>N</i> = 267)	No
Nader-Grosbois (2014)	SPP-LD [⊗]	GSC*, BSC*, CSC, PASC, PSC [□] , SSC [⊕]	Yes (<i>N</i> = 28)	CA, MA
O'Byrne & Muldoon (2017)	SPP-LD [⊗]	GSC*, BSC*, CSC, PASC, PSC [□] , SSC [⊕]	No	ID level, sex
O'Such et al. (1979)	PHCSCS	GSC*	Yes (<i>N</i> = 32)	Group x CA
Ottenbacher (1981)	PHCSCS	GSC*	No	CA, IQ, sex
Stager et al. (1983)	RSEES	GSC*	Yes (<i>N</i> = 330)	No
Szumski & Karwowski (2015)	SSASC	ASC	No	IAACH, PAACH, PLAC
Wheeler & Reilly (1980)	HISMS	ASC [◇] , PASC [♠] , SSC [♣]	No	AACH
Yun & Ulrich (1997)	PSPPCMR	PSC [●]	No	CA, sex, CA x sex

Note. AACH = academic achievement; APERF = academic performance; ASC = academic self-concept; AVMA = adolescent verbal mental age; BSC = behavior self-concept; CA = chronological age; CASC = cognitive and academic self-concept; CSC = cognitive self-concept; CSEI = Coopersmith Self-Esteem Inventory; ETES = Échelle Toulousaine d'Estime de Soi; GDA = global developmental age; GSC = global self-concept; HISMS = How I See Myself Scale; ID = intellectual disability; IQ = intellectual quotient; IAACH = individual academic achievement; MA = mental age; MZSCS = Martinek-Zaichkowsky Self-Concept Scale; PAACH = parent reported academic achievement; PASC = physical appearance self-concept; PCSC = Perceived Competence Scale for Children; PHCSCS = Piers-Harris Children's Self-Concept Scale; PLAC = placement; PSC = physical self-concept; PSPCSA = Pictorial Scale of Perceived Competence and Social Acceptance for young children; PSPPCMR = Pictorial Scale of Perceived Physical Competence for Children with Mental Retardation; RSEES = Rosenberg-Simmons Self-Esteem Scale; SIDM = Self-Image Disparity Measure; SPP-C = Self-perception profile for Children; SPP-LD = Self-Perception Profile for Learning Disabled students; SSASC = Short Scale of Academic Self-Concept; SSC = social self-concept; SSE = Student Self Evaluation; TD = typically developing. ^oAnxiety and happiness/satisfaction subscales have not been used. [☆]Real self-image. ^AIntellectual abilities and school status. ^{*}(Global) self-esteem/global self-worth/(global-total) self-concept. [⊗]Popularity/social appreciation. [⊕]General social acceptance. [⊗]Behavioural conduct. [⊗]The reading, writing, spelling, and mathematic subscales have not been used. [□]*General school. [□]Physical ability/athletic competence. [◇]Academic adequacy. [♠]Personal appearance. [♣]Interpersonal adequacy. [●]Perceived physical competence.

Table 4.*Results of the Reviewed Studies Comparing Levels of Self-Concept Between Youth with ID and TD Youth*

Dimensions	All studies	N	Age samples				School placement							
			Children	N	Adolescents	N	Mixed	N	Special class	N	Special school	N	Mixed	N
GSC														
TD > ID	Carroll et al. (1984); Chiu (1990); Jones (1985); Leahy et al. (1982) ^{CL} ; O'Such et al. (1979)	5	Carroll et al. (1984); Chiu (1990); O'Such et al. (1979)	3				Jones (1985); Leahy et al. (1982) ^{CL}	2	Carroll et al. (1984); Chiu (1990); Jones (1985); Leahy et al. (1982) ^{CL}	4			
TD = ID	Beck et al. (1982); Leahy et al. (1982) ^P ; Mueller & Prout (2009) ^o ; Nader-Grosbois (2014); Stager et al. (1983)	5			Mueller & Prout (2009) ^o ; Nader-Grosbois (2014); Stager et al. (1983)	3	Beck et al. (1982); Leahy et al. (1982) ^P	2	Beck et al. (1982); Leahy et al. (1982) ^P	2	Nader-Grosbois (2014)	1	Stager et al. (1983)	1
BSC														
TD > ID	Chovan & Morrison (1984); Jones (1985)	2	Chovan & Morrison (1984)	1			Jones (1985)	1	Chovan & Morrison (1984); Jones (1985)	2				
TD = ID	Beck et al. (1982); Nader-Grosbois (2014)	2			Nader-Grosbois (2014)	1	Beck et al. (1982)	1	Beck et al. (1982)	1	Nader-Grosbois (2014)	1		
CSC														
TD > ID														
TD = ID	Nader-Grosbois (2014)	1			Nader-Grosbois (2014)	1					Nader-Grosbois (2014)	1		

Note. BSC = behavior self-concept; CASC = cognitive and academic self-concept; CL = checklist task; CSC = cognitive self-concept; GSC = global self-concept; ID = intellectual disabilities; P = picture task; PASC = physical appearance self-concept; PSC = physical self-concept; SSC = social self-concept; TD = typically developing; ^oOnly the data from wave 1 were used; TD > ID and TD = ID correspond to the statistical significance reported by the authors.

Table 4. (Continued)

Dimensions	All studies	N	Age samples						School placement					
			Children	N	Adolescents	N	Mixed	N	Special class	N	Special school	N	Mixed	N
CASC														
TD > ID	Chovan & Morrison (1984); Jones (1985)	2	Chovan & Morrison (1984)	1			Jones (1985)	1	Chovan & Morrison (1984); Jones (1985)	2				
TD = ID	Beck et al. (1982)	1					Beck et al. (1982)	1	Beck et al. (1982)	1				
PASC														
TD > ID														
TD = ID	Beck et al. (1982); Chovan & Morrison (1984); Jones (1985); Nader-Grosbois (2014)	4	Chovan & Morrison (1984)	1	Nader-Grosbois (2014)	1	Beck et al. (1982); Jones (1985)	2	Beck et al. (1982); Chovan & Morrison (1984); Jones (1985)	3	Nader-Grosbois (2014)	1		
PSC														
TD > ID														
TD = ID	Nader-Grosbois (2014)	1			Nader-Grosbois (2014)	1					Nader-Grosbois (2014)	1		
SSC														
TD > ID	Jones (1985)	1					Jones (1985)	1	Jones (1985)	1				
TD = ID	Beck et al. (1982); Chovan & Morrison (1984); Fiasse & Nader-Grosbois (2012); Nader-Grosbois (2014)	4	Chovan & Morrison (1984)	1	Nader-Grosbois (2014)	1	Beck et al. (1982); Fiasse & Nader-Grosbois (2012)	2	Beck et al. (1982); Chovan & Morrison (1984)	2	Fiasse & Nader-Grosbois (2012); Nader-Grosbois (2014)	2		

Table 5.

Results of the Reviewed Studies Examining the Correlates of Self-Concept among Youth with ID

Correlates	Relation	GSC		ASC		BSC		CSC		PASC		PSC		SSC	
		Studies	(+/-)	Studies	(+/-)	Studies	(+/-)	Studies	(+/-)	Studies	(+/-)	Studies	(+/-)	Studies	(+/-)
Academic achievement/performance	-				(1/2, 50%)				(0/1, 0%)		(0/1, 0%)				(0/1, 0%)
				Szumski & Karwowski (2015) ^a											
	+			Szumski & Karwowski (2015) ^b											
	NS			Wheeler & Reilly (1980)				Huck et al. (2010)			Wheeler & Reilly (1980)				Wheeler & Reilly (1980)
Age CA (+ means that older participants have higher scores)	-	Leahy et al. (1982) ^{CL}	(2/6, 33%)				(0/1, 0%)		(0/2, 0%)		Nader-Grosbois (2014)	(1/1, 100%)		Yun & Ulrich (1997)	(1/3, 33%)
	+	Ottenbacher (1981)													
	NS	Bybee et al. (1990); Carroll et al. (1984); Nader-Grosbois (2014); O'Such et al. (1979)				Nader-Grosbois (2014)		Bybee et al. (1990); Nader-Grosbois (2014)				Bybee et al. (1990); Nader-Grosbois (2014)			Bybee et al. (1990); Fiasse & Nader-Grosbois (2012); Nader-Grosbois (2014)

Note. ASC = academic self-concept; BSC = behavior self-concept; CA = chronological age; CL = checklist task; CSC = cognitive self-concept; GSC = global self-concept; ID = intellectual disabilities; IQ = intellectual quotient; MA = mental age; NS = non-significant; PASC = physical appearance self-concept; PSC = physical self-concept; SSC = social self-concept; + Significant and positive relation; - Significant and negative relation; ^ayouth's report of academic achievement; ^bparent report of academic achievement.

Table 5. (Continued)

Correlates	Relation	GSC		ASC		BSC		CSC		PASC		PSC		SSC	
		Studies	(+/-)	Studies	(+/-)	Studies	(+/-)	Studies	(+/-)	Studies	(+/-)	Studies	(+/-)	Studies	(+/-)
MA			(1/4, 25%)				(0/1, 0%)		(0/2, 0%)		(0/1, 0%)		(0/2, 0%)		(0/4, 0%)
	-														
	+	Leahy et al. (1982) ^{CL}													
	NS	Bybee et al. (1990); Jones (2012); Nader- Grosbois (2014)				Nader- Grosbois (2014)		Bybee et al. (1990); Nader- Grosbois (2014)		Nader- Grosbois (2014)		Bybee et al. (1990); Nader- Grosbois (2014)		Bybee et al. (1990); Fiasse & Nader- Grosbois (2012); Jones (2012); Nader- Grosbois (2014)	
Sex			(2/9, 22%)		(0/1, 0%)		(0/1, 0%)		(0/2, 0%)		(0/1, 0%)		(0/4, 0%)		(0/4, 0%)
(+ means boys have higher scores than girls; - means that boys have lower scores than girls)	-	Ottensbacher (1981)													
	+	Blackbourn & Blackbourn (1987)													
	NS	Bybee et al. (1990); Carroll et al. (1984); Chiu (1990); Jones (2012); Leahy et al. (1982); Moldovan et al. (2013); O'Byrne & Muldoon (2017)		Moldovan et al. (2013)		O'Byrne & Muldoon (2017)		Bybee et al. (1990); O'Byrne & Muldoon (2017)		O'Byrne & Muldoon (2017)		Bybee et al. (1990); Moldova n et al. (2013); O'Byrne & Muldoon (2017); Yun & Ulrich (1997)		Bybee et al. (1990); Jones (2012); Moldova n et al. (2013); O'Byrne & Muldoon (2017)	

Table 6.

Quality Assessment of the Reviewed Studies

Studies	Internal validity					Score	Statistical validity			Score	External validity						Score
	1	2	3	4a	4b		5	6	7a		7b	7c	7d	7e	7f	8	
Beck et al. (1982)	○	○	○	●	●	2/5	●	○	1/2	●	●	○	○	○	●	○	3/7
Blackbourn & Blackbourn (1987)	○	○	○	○	●	1/5	○	○	0/2	●	○	○	○	●	○	●	3/7
Bybee et al. (1990)	○	○	●	●	●	3/5	●	○	1/2	○	●	●	●	●	●	○	5/7
Carroll et al. (1984)	○	○	●	●	●	3/5	●	○	1/2	●	●	●	○	●	●	○	5/7
Chiu (1990)	○	○	●	○	●	2/5	●	○	1/2	●	●	●	○	●	●	○	5/7
Chovan & Morrison (1984)	●	○	●	○	○	2/5	●	○	1/2	●	○	●	○	○	●	○	3/7
Fiasse & Nader-Grosbois (2012)	○	○	●	●	○	2/5	●	○	1/2	●	●	○	●	●	●	○	5/7
Huck et al. (2010)	●	○	●	○	○	2/5	●	○	1/2	●	●	●	●	●	●	○	6/7
Jones (1985)	○	○	●	○	○	1/5	●	○	1/2	●	○	○	○	●	●	○	3/7
Jones (2012)	○	●	●	○	●	3/5	●	○	1/2	●	●	●	●	●	●	○	6/7
Leahy et al. (1982)	○	○	●	●	●	3/5	●	○	1/2	●	○	●	○	●	●	○	4/7
Moldovan et al. (2013)	○	○	○	○	●	1/5	●	○	1/2	●	●	○	○	●	●	○	4/7
Mueller & Prout (2009)	●	●	●	○	●	4/5	●	○	1/2	●	●	○	○	●	●	●	5/7
Nader-Grosbois (2014)	○	○	●	●	○	2/5	●	○	1/2	●	○	●	●	●	●	○	5/7
O'Byrne & Muldoon (2017)	○	●	●	○	●	3/5	●	○	1/2	●	●	●	○	●	●	○	5/7
O'Such et al. (1979)	○	○	○	●	○	1/5	●	○	1/2	●	○	○	○	○	●	●	3/7
Ottenbacher (1981)	○	○	○	●	●	2/5	●	○	1/2	●	●	●	○	●	●	○	5/7
Stager et al. (1983)	○	●	●	○	●	3/5	●	○	1/2	●	●	○	○	●	●	○	4/7
Szumski & Karwowski (2015)	●	●	●	○	○	3/5	●	○	1/2	●	●	●	○	○	●	●	5/7
Wheeler & Reilly (1980)	○	○	●	○	○	1/5	●	○	1/2	●	●	●	○	●	●	○	5/7
Yun & Ulrich (1997)	●	○	●	●	●	4/5	●	○	1/2	●	●	●	○	●	●	○	5/7
Total	5/21	5/21	16/21	9/21	13/21		20/21	0/21		20/21	15/21	13/21	5/21	17/21	20/21	4/21	

Note. 1 = validity of self-concept measure; 2 = reliability of self-concept measure; 3 = clear presentation of self-concept assessment; 4a = correction for confounding effect of age; 4b = correction for confounding effect of sex; 5 = use of appropriate statistical tests; 6 = adequate sample size; 7a = adequate information regarding age/grade; 7b = adequate information regarding sex; 7c = adequate information regarding level of intellectual disability; 7d = adequate information regarding comorbidity (i.e., down syndrome, autism spectrum disorder, Prader-Willi); 7e = adequate information regarding recruitment setting; 7f = adequate information regarding school placement; 8 = sampling method. ● = 1 point; ○ = 0 point.

Online Supplemental Materials for:**Self-Concept Research with School-Aged Youth with Intellectual Disabilities: A Systematic Review****References of Full Text Articles Assessed for Eligibility but Excluded from the Systematic Review**

- Allodi, M. W. (2000). Self-concept in children receiving special support at school. *European Journal of Special Needs Education, 15*, 69-78.
- Battle, J. (1979). Self-esteem of students in regular and special classes. *Psychological Reports, 44*, 212-214.
- Battle, J., & Blowers, T. (1982). A longitudinal comparative study of the self-esteem of students in regular and special education classes. *Journal of Learning Disabilities, 15*, 100-102.
- Begley, A. (1999). The self-perceptions of pupils with Down syndrome in relation to their academic competence, physical competence and social acceptance. *International Journal of Disability, Development and Education, 46*, 515-529.
- Blackbourn, J. M. (1988). Varying preschool arrangements and self-concepts of educable mentally retarded children in grade 1. *Perceptual & Motor Skills, 66*, 1013-1014.
- Blackbourn, J. M., & Wilson, J. (1988). Teacher validation of the Martinek-Zaichkowsky self-concept scale for children with mildly mentally retarded children. *Educational and Psychological Measurement, 48*, 439-443.
- Bliss, L. S. (1985). Comparison of self- and peer-perceptions of mentally retarded children. *Perceptual and Motor Skills, 60*, 987-993.

- Cambra, C., & Silvestre, N. (2003). Students with special educational needs in the inclusive classroom: Social integration and self-concept. *European Journal of Special Needs Education, 18*, 197-208.
- Chassin, L., Stager, S. F., & Young, R. D. (1985). Self-labeling by educably mentally retarded high school students in their mainstream and special classes. *American Journal of Community Psychology, 13*, 449-465.
- Coleman, J. M. (1983). Self-concept and the mildly handicapped: The role of social comparisons. *The Journal of Special Education, 17*, 37-45.
- Cosden, M. A., & English, J. P. (1987). The effects of grouping, self-esteem, and locus of control on microcomputer performance and help seeking by mildly handicapped students. *Journal of Educational Computing Research, 3*, 443-460.
- Dagnan, D., & Sandhu, S. (1999). Social comparison, self-esteem and depression in people with intellectual disability. *Journal of Intellectual Disability Research, 43*, 372-379.
- Davis, C., Kellett, S., & Beail, N. (2009). Utility of the Rosenberg self-esteem scale. *American Journal on Intellectual and Developmental Disabilities, 114*, 172-178.
- Donohue, D., Wise, J. C., Ronski, M., Henrich, C. C., & Ann Sevcik, R. (2010). Self-concept development and measurement in children with mild intellectual disabilities. *Developmental Neurorehabilitation, 13*, 322-334.
- Duvdevany, I. (2002). Self-concept and adaptive behaviour of people with intellectual disability in integrated and segregated recreation activities. *Journal of Intellectual Disability Research, 46*, 419-429.
- Elias, C., Vermeer, A., & Hart, T. (2005). Measurement of perceived competence in Dutch children with mild intellectual disabilities. *Journal of Intellectual Disability Research, 49*, 288-295.

- Esdale, L., Jahoda, A., & Pert, C. (2015). Coping with criticism and praise. *American Journal on Intellectual and Developmental Disabilities, 120*, 258-268.
- Fernell, E., Gillberg, C., & von Wendt, L. (1992). Self-esteem in children with infantile hydrocephalus and in their siblings. Use of the Piers-Harris self-concept scale. *European Child & Adolescent Psychiatry, 1*, 227-232.
- Ferro, M. A., & Boyle, M. H. (2013). Brief report: Testing measurement invariance and differences in self-concept between adolescents with and without physical illness or developmental disability. *Journal of Adolescence, 36*, 947-951.
- Girli, A. (2013). An examination of the relationships between the social skill levels, self-concepts and aggressive behavior of students with special needs in the process of inclusion education. *Cukurova University Faculty of Education Journal, 42*, 23-38.
- Jahoda, A., Pert, C., Squire, J., & Trower, P. (1998). Facing stress and conflict: A comparison of the predicted responses and self-concepts of aggressive and non-aggressive people with intellectual disability. *Journal of Intellectual Disability Research, 42*, 360-369.
- Jahoda, A., Wilson, A., Stalker, K., & Cairney, A. (2010). Living with stigma and the self-perceptions of people with mild intellectual disabilities. *Journal of Social Issues, 66*, 521-534.
- Johnson, P. (2012). The prevalence of low self-esteem in an intellectually disabled forensic population. *Journal of Intellectual Disability Research, 56*, 317-325.
- Johnston, C., & Sinclair, K. E. (2003). Self-concept, development and disability: The implications for theory building. *Australian Journal of Psychology, 55*, 104.
- Jones, J. L., Oseland, L. M., Morris, K. L., & Larzelere, R. E. (2014). Parent report of conversations with their adolescents with intellectual disability. *Journal of Applied Research in Intellectual Disabilities, 27*, 521-530.

- Kowsalya, D. N., Venkat Lakshmi, H., & Suresh, K. P. (2012). Development and validation of a scale to assess self-concept in mild intellectually disabled children. *International Journal of Social Sciences & Education, 2*, 699-709.
- Kozub, F. M., & Porretta, D. L. (1999). Internal and external attributions for levels of perceived physical competence in children with mental retardation. *Education and Training in Mental Retardation and Developmental Disabilities, 34*, 35-42.
- Li, E. P. Y., Tam, A. S. F., & Man, D. W. K. (2006). Exploring the self-concepts of persons with intellectual disabilities. *Journal of Intellectual Disabilities, 10*, 19-34.
- Lund, N. L., Carman, S. M., & Kranz, P. L. (1981). Reliability in the use of the Tennessee Self-Concept Scale for educable mentally retarded adolescents. *The Journal of Psychology, 109*, 205-211.
- Maïano, C., Bégarie, J., Morin, A. J. S., & Ninot, G. (2009). Assessment of physical self-concept in adolescents with intellectual disability: Content and factor validity of the very Short Form of the Physical Self-Inventory. *Journal of Autism and Developmental Disorders, 39*, 775-787.
- Maïano, C., Morin, A. S., Begarie, J., & Ninot, G. (2011). The Intellectual Disability Version of the Very Short Form of the Physical Self-Inventory (PSI-VS-ID): Cross-Validation and measurement invariance across gender, weight, age and intellectual disability level. *Research in Developmental Disabilities, 32*, 1652-1662.
- Marsh, H. W., Tracey, D. K., & Craven, R. G. (2006). Multidimensional self-concept structure for preadolescents with mild intellectual disabilities. *Educational & Psychological Measurement, 66*, 795-818.
- O'Byrne, C., & Muldoon, O. T. (2017). Changes in domain specific self-perception amongst young people with intellectual disability: A longitudinal study. *European Journal of*

Special Needs Education. Advance online publication. doi:
10.1080/08856257.2017.1300164

- Oliver, C. (1986). Self-concept assessment: A case study. *Journal of the British Institute of Mental Handicap (APEX)*, *14*, 24-25.
- Plesa-Skwerer, D., Sullivan, K., Joffre, K., & Tager-Flusberg, H. (2004). Self-concept in people with Williams syndrome and Prader–Willi syndrome. *Research in Developmental Disabilities*, *25*, 119-138.
- Popovici, D. V., & Buică-Belciu, C. (2013). Self-Concept pattern in adolescent students with intellectual disability. *Procedia-Social and Behavioral Sciences*, *78*, 516-520.
- Ribner, S. (1978). The effects of special class placement on the self-concept of exceptional children. *Journal of Learning Disabilities*, *11*, 319-323.
- Rich, C. E., Barcikowski, R. S., & Witmer, J. M. (1979). The factorial validity of the Piers-Harris Children's Self Concept Scale for a sample of intermediate-level EMR students enrolled in elementary school. *Educational and Psychological Measurement*, *39*, 485-490.
- Schuster, T. L., & Butler, E. W. (1986). Labeling, mild mental retardation, and long-range social adjustment. *Sociological Perspectives*, *29*, 461-483.
- Scruggs, T. E., & Mastropieri, M. A. (1983). Self-esteem differences by sex and ethnicity: Native American, handicapped Native American, and Anglo children. *Journal of Instructional Psychology*, *10*, 177-179.
- Silon, E. L., & Harter, S. (1985). Assessment of perceived competence, motivational orientation, and anxiety in segregated and mainstreamed educable mentally retarded children. *Journal of Educational Psychology*, *77*, 217-230.

- Strang, L., Smith, M. D., & Rogers, C. M. (1978). Social comparison, multiple reference groups, and the self-concepts of academically handicapped children before and after mainstreaming. *Journal of Educational Psychology, 70*, 487-497.
- Szivos-Bach, S. E. (1993). Social comparisons, stigma and mainstreaming: The self-esteem of young adults with a mild mental handicap. *Mental Handicap Research, 6*, 217-236.
- Valentini, N., & Rudisill, M. (2004). Motivational climate, motor-skill development, and perceived competence: Two studies of developmentally delayed kindergarten children. *Journal of Teaching in Physical Education, 23*, 216-234.
- Varsamis, P., & Agaliotis, I. (2011). Profiles of self-concept, goal orientation, and self-regulation in students with physical, intellectual, and multiple disabilities: Implications for instructional support. *Research in Developmental Disabilities, 32*, 1548-1555.
- Vermeer, A., Lijnse, M., & Lindhout, M. (2004). Measuring perceived competence and social acceptance in individuals with intellectual disabilities. *European Journal of Special Needs Education, 19*, 283-300.
- Widaman, K. F., MacMillan, D. L., Hemsley, R. E., Little, T. D., & Balow, I. H. (1992). Differences in adolescent's self-concept as a function of academic level, ethnicity, and gender. *American Journal on Mental Retardation, 96*, 387-404.
- Willoughby, C., Polatajko, H., & Wilson, B. N. (1995). The self-esteem and motor performance of young learning disabled children. *Physical & Occupational Therapy in Pediatrics, 14*, 1-30.