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How do peers promote social inclusion of children with disabilities? A mixed-methods systematic review

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Abstract

Purpose: This mixed-methods systematic review synthesized findings from studies published between January 1, 2006 and July 31, 2018 on the social inclusion experiences of children with and without disabilities, as viewed from their own perspective, with a focus on how typically developing peers promote social inclusion.

Method: Forty-five studies met the inclusion criteria. Data from included studies were synthesized by means of content analysis.

Results: The findings detail the inner social inclusion experiences (e.g., feeling included, different) of children with disabilities and provide information regarding the influence of disability type (e.g., physical, social, affective) on typically developing peers' responses (e.g., acceptance vs. rejection), peers' explanations for social inclusion/exclusion, and peers' relationships with children with disabilities. Barriers to social inclusion, supports, as well as strategies used to promote social inclusion, as perceived by peers and children with disabilities, are also reported.

Conclusion: The findings of this review provide evidence that despite society's efforts to promote social inclusion, children with disabilities continue to report feeling lonely and excluded, having limited contact socially outside of home, and encountering systemic barriers (e.g., bullying, discrimination). More research on the social inclusion experiences of children with disabilities beyond educational settings is needed, such as in the contexts of recreation and leisure, community, and employment. **Word count: 208**

Keywords: children with disabilities, typically developing peers, social inclusion, barriers, supports, friendships

Introduction

Globally, approximately 150 million children (under age 18) live with a disability (ies) [1]. These children face multiple barriers that limit their participation in society: negative attitudes, inadequate policies, inaccessible built environments (e.g., buildings, roads) and transportation, unequal access to healthcare, social services, and education, as well as lack of accessible communication and information [2-4]. In addition to limiting societal participation, such barriers increase the risk of negative outcomes for children with disabilities, including reduced educational attainment and employment as well as increased poverty, discrimination, and exclusion relative to their typically developing peers [2,3,5-10]. Barriers faced by children with disabilities also pose significant negative impacts on health status and quality, including poorer health, increased frequency and length of hospitalizations, and decreased coordination of care [3].

The lack of consensus on a definition of disability and the dearth of scientific data on disability issues have made it difficult to make evidence-informed decisions aimed at addressing the needs of children with disabilities, including their degree of inclusion in society [3]. Likewise, social inclusion has been defined in different ways across sectors [3,11]. In 1989, the United Nations called for the protection of the fundamental human rights of children with disabilities, including their right to inclusion in society [12]. Since then, law and policy in some countries have shifted towards education and community inclusion of children with disabilities [3,11,13] such that social inclusion is increasingly seen as a basic human *right* rather than a *privilege* [3,11]. In addition to addressing issues of human rights and social justice, social inclusion can combat negative attitudes and discrimination regarding those with disabilities [14]. For example, in a study by Favazza and Odom [15], typically developing peers in inclusive

classrooms (that included discussions about disabilities) had more positive attitudes towards individuals with disabilities in general compared to those in classrooms without peers with disabilities. Social inclusion can also enhance the development and quality of social experiences of children with disabilities [13,16]. Thus, data indicate benefits of social inclusion to both children with disabilities and their typically developing peers.

To date, a number of systematic reviews have synthesized the literature on the inclusion of children with disabilities. In general, these reviews have focused on specific topic areas, including: (1) the impact of inclusive education on children with and without disabilities [17-19]; (2) the perspectives of parents, educators, and typically developing peers on inclusive education [20-24]; (3) the perspectives of youth with disabilities regarding the impact of the environment on their participation at school, home, and community [25]; (4) inclusion in physical education [26]; (5) the impact of peer-mediated interventions (PMIs) on children with and without specific disabilities [27-30]; and (6) the social relationships and friendships of children with developmental disabilities [13,31]. Whereas these reviews have advanced our understanding of the inclusion experiences of children living with disabilities, they have tended to focus on the experiences of inclusion within educational settings, with little documentation of inclusion experiences for these children across sectors (e.g., community) and contexts (e.g., family). As well, most of the reviews have focused on children with specific disabilities.

To our knowledge, there is no recent systematic review on the social inclusion experiences of children living with and without disabilities, where: (1) “disabilities” is an encompassing term that refers to any of many chronic physical, mental, intellectual, behavioural, social, and emotional illnesses and disabilities; (2) the focus is on social inclusion experiences beyond educational settings; and (3) the experiences of social inclusion and strategies for its

promotion from the perspectives of typically developing peers are taken into account. A synthesis of the empirical evidence regarding social inclusion across disabilities and contexts as well as from the perspectives of both children living with disabilities and their typically developing peers would greatly enhance our understanding of the social inclusion experiences of children, which is critical to facilitate inclusion of children with disabilities across societal domains. Examining the perspectives of children with and without disabilities on the ways in which peers promote social inclusion is necessary in order to develop a full understanding of this phenomena, as these groups of children play different roles in the inclusion process.

In order to address these gaps in the literature, the purpose of this mixed-methods systematic review was to synthesize the best available evidence on the social inclusion experiences of children with and without disabilities, including how typically developing peers promote social inclusion of children with disabilities. For the purposes of this review, children with disabilities refers to children living with one or more physical, mental, intellectual, behavioural, social, and emotional illnesses and disabilities, who may require multiple services, from a variety of sectors, and from multiple locations [9,32]. Social inclusion refers to the equal and active participation of children with disabilities in settings such as the school, community (e.g., playgrounds and religious settings), and family and peer events (e.g., birthday parties and sleepovers) [3,4,11]. A protocol of this systematic review was published following a preliminary review of the literature and before searching all databases of interest using the strategy formulated for this review [33].

Methods

Search Strategy

An initial search was conducted to locate any existing systematic reviews or review protocols on the same topic in the following resources: Prospero, Cochrane Library, Joanna Briggs Institute EBP Database, Epistemonikos, Campbell Collaboration, and Google Scholar. Following that, a limited search using an initial set of keywords for children with complex care needs, social inclusion, and peers, was done in the ERIC and CINAHL databases in order to identify further relevant keywords and subject headings. The final search strategy was developed using keywords and subject headings combined by relevant Boolean (AND, OR) and proximity operators. The concept of children living with disabilities was searched using subject headings and related keywords for children and adolescents combined with subject headings for disabled children, chronic disease, and specific childhood developmental disorders, as well as keywords for disabilities or complex care needs and conditions. The concept of social inclusion was searched using subject headings for interpersonal relations, social inclusion, exclusion, participation, friendship, and bullying, as well as keyword phrases for inclusion, participation, integration, acceptance, and belonging. The final concept included subject headings of peer group and friends as well as related peer, friends, and social network keywords. The searches for each concept were then combined using the AND operator.

The search strategy was then adapted for each database. The search was run on February 13, 2017 and updated on August 1, 2018 in the following databases: ERIC (ProQuest), CINAHL (Ebsco), Medline (Ovid), Academic Search Complete (Ebsco), PsycINFO (ProQuest), Social Sciences Citation Index (Thomson Reuters), and Child Development and Adolescent Studies (Ebsco). The search was limited in each database to English language results and publication

dates from 2006 to the search date. Search results were imported into RefWorks (a reference management software) where duplicates were identified and removed. All references of included articles were probed for additional studies. The search strategy for the Medline database is reported in Supplementary Table S1.

Study Selection

Studies that: (1) focused on the social inclusion experiences of children living with and without disabilities (aged 2 to 17 years); (2) used a qualitative, quantitative, and/or mixed-methods research approach; (3) were written in English; and (4) were published between January 2006 and July 2018 met the inclusion criteria and were screened further. Studies examining social inclusion experiences across a wide range of activities (e.g., peer social events, family social activities) and community settings, including schools, playgrounds, community centres, religious settings, and children's homes, were selected. Studies were excluded if they were based on data irrelevant to the review question; included young adults (those 18 years of age and older) in study population; exclusively focussed on teacher and/or parent views of social inclusion; nonempirical research, and unpublished research.

From this compilation, each study was then classified as "include," "exclude," or "unclear." The full-text version of articles classified as either "include" or "unclear" by one of two reviewers were retrieved for formal review. The two reviewers independently assessed the full-text version of each article using a standardized form that outlined the inclusion criteria. This form was pilot-tested on a sample of studies.

Quality Assessment

Two reviewers critically appraised each included study independently using the Mixed Methods Appraisal Tool (MMAT) version 2011 [34] that appraises qualitative, quantitative, and mixed-methods studies. Any disagreements that arose between reviewers were resolved through discussion or with a third reviewer. An overall quality score was derived using the MMAT. For each criterion, a value of 1 was assigned to a “Yes” response, whereas a value of 0 was assigned to a “No” response. The overall quality score was then calculated by dividing the number of “Yes” responses by the number of relevant criteria and multiplying the product by one hundred to yield a percentage. For mixed-methods studies, the appropriate criteria for the quantitative, qualitative, and mixed methods-components are used; the lowest score of the study components is then assigned as the overall quality score [34]. In addition to being practical (taking approximately 14 minutes to complete), the MMAT has been shown to have an intra-class correlation of 0.8, considered indicative of substantial agreement between reviewers (a.k.a., good interrater reliability) [35].

Data Extraction & Synthesis

One reviewer extracted data from selected studies. The data extracted pertained to each study’s author(s), objectives, design, setting, sample characteristics (sample size, age range), outcomes, data collection and analysis methods as well as conclusions. A second reviewer then verified the extracted data. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist and flowchart guided the reporting of our findings [36].

Study findings that were relevant to the research purpose were first extracted by one reviewer and then verified by a second reviewer. Data from quantitative, qualitative, and mixed-

methods studies were analyzed separately using content analysis and then integrated as a whole [37]. Data were coded to identify categories, which were then integrated into two main findings: “Experience of social inclusion by typically developing peers” and “Experience of social inclusion for children with disabilities”. Any disagreements were resolved by discussion between the two reviewers until consensus was reached.

Results

Search Strategy and Study Selection

The search yielded a total of 5,247 articles, with a total of 3,213 articles after duplicates were removed. Of these, 96 articles were selected based on titles and abstract. The full-text versions of studies were retrieved and then reviewed using inclusion criteria, as defined above. Of these, 45 met criteria for final inclusion in this review. The study search and selection processes are outlined in figure 1.

[Insert figure 1 here]

Quality Assessment

MMAT quality assessment scores were calculated for the included studies, which indicated varying degrees of quality. For instance, for the quantitative and qualitative studies, quality scores ranged from 50% (meeting two of the four methodological quality criteria) to 100% (meeting all of the specified criteria). Over half of the mixed-methods studies had an overall quality score of 75% (i.e., met three of the four methodological quality criteria) (see Supplementary Table S2).

Study Characteristics

Quantitative studies (n= 8). The quantitative studies (see table 1) were conducted in the U.S.A, Iran, Europe, and Australia. The studies took place either at primary schools [38-42] or secondary schools [40,42-54] attended by both students with and without disabilities. The type of disabilities or conditions included physical disabilities, intellectual disabilities, attention-deficit/hyperactivity disorder, autism spectrum disorder, cerebral palsy, Down's syndrome, epilepsy, and Rett syndrome [38,39,41,42,44]. In two studies, the specific disability was not stated; in these cases, authors noted either the presence of a mild disability [43] or special education needs [40]. Three of the eight studies included typically developing peers [38,44,45]. Data were collected via survey questionnaires and sociometric techniques, such as peer nominations.

[Insert table 1 here]

Qualitative studies (n= 27). The qualitative studies (see table 2) included in this review were conducted in Canada, U.S.A., Europe, Japan, Australia, and New Zealand. Study samples focused on children with disabilities [46-65], children with and without disabilities [66-69], as well as children without disabilities [70-72]. The type of disabilities or conditions included physical disabilities, cerebral palsy, Down syndrome, autism spectrum disorders (including Asperger's syndrome, as previously classified in the DSM-IV [73]), intellectual disabilities, learning disabilities, attention-deficit/hyperactivity disorder, Noonan syndrome, brain injury, Spina bifida, cystic fibrosis, post meningococcal disease, severe asthma, and tracheostomy. Study participants were preschoolers [50,62,67,69], primary-school-aged children [46,48-51,55-58,60,65,66,68-70,72], and

secondary school-aged adolescents [48,50,52,54,56,59,61,65,66,69-71]. Only five studies involved recruitment of participants from the community [47,53,59,63,64], whereas all others were conducted in the school setting. Data were collected through interviews, observations, field notes, focus groups, school records review, and photographs.

[Insert table 2 here]

Mixed-methods studies (n= 10). The mixed-methods studies (see table 3) were conducted in Canada, the U.S.A., Europe, Hong Kong, and Australia. All studies but one took place in a school setting, including preschools [74-77], primary [78-80], and secondary schools [81,82]; one study recruited participants from the community [83]. Study samples consisted of children with disabilities [77,81,83], children without disabilities [74,76], and children with and without disabilities [75,78-80,82]. Type of disabilities or conditions included physical disabilities, cognitive and learning disabilities, social/emotional/behavioural disorders, autism spectrum disorders (including Asperger's syndrome), and developmental delay. Data were collected via questionnaires, sociometric techniques (e.g., peer nominations), semi-structured interviews, participant observation, and vignettes.

[Insert table 3 here]

Findings

Finding 1: Experience of social inclusion by typically developing peers. This finding details peers' social inclusion experiences with children with disabilities, including

how they respond to children with disabilities, their perceived barriers and supports to social inclusion, the interactions and roles peers play in friendships with children with disabilities, and strategies peers use or recommend to promote social inclusion.

Acceptance and explanations for social inclusion. Disability type influenced how peers responded or behaved towards a child with a disability. Disabilities that were associated with peer acceptance included: visible disabilities, physical disabilities, learning disabilities, sensorial impairments, speech/language impairments, disabilities that do not affect social problem solving or emotion regulation, and disabilities that interfered minimally with participation [40,41,44,74,75,77,82]. In contrast, disabilities that were: invisible, more severe and interfered with participation, and affected social problem solving or emotion regulation (e.g., attention-deficit/hyperactivity disorder, developmental delay) were associated with peer rejection [39,41,44,69,74,77,78,82]. Based on peer nomination data (e.g., children asked to specify who their friends were), children with communication problems, behavioural problems, social/emotional problems, and sensory and/or motor limitations were found to have fewer friends [38,40,44,78] than typically developing peers. Race and age/grade level in addition to disability may also impact peer acceptance [38,61].

Some studies examined peers' decisions to include or exclude a child with disabilities in activities. Reasons for inclusion pertained to ability or competence, absence of equipment (e.g., wheelchair) making it less difficult for the child with disabilities to participate, desire to share with the child with disabilities, and desire to be fair [71,74,76]. Lack of interference of the disability with the activity, being aware of a lack of experience on the part of the child with a disability, and minimal functional skills required for the child to participate were also identified

as reasons for inclusion [69,74-76]. One study found that when peers were given information regarding how a child with a disability could participate, 50% of the children indicated they would include the child when disability did not interfere with performance, whereas only 33% indicated they would include the child when the disability interfered with performance, indicating that the demands of the proposed activity affect peer selection [74]. Other justifications for exclusion reported in the literature include the child's: ability with or use of a wheelchair; communication problems; conflicts with peers (e.g., being physically aggressive or disruptive); lack of social skills; avoidance of peers and withdrawal behaviour; and preference to speak and play with adults [69,76,77]. One study found that peers reject or escape interacting with peers with disabilities as they see them as "awkward," "weird," or "scary" [82].

Barriers and supports.

Barriers. Typically developing peers perceived the physical presence of teacher assistants (e.g., limited opportunity to speak to child with a disability) and disability-related challenges, such as difficulty with movement and communication (e.g., hard to understand, peers' own lack of proficiency in augmentative and alternative communication), as barriers to social inclusion for children with disabilities [39,54,70]. Other barriers noted pertained to children with disabilities' lack of social competence (e.g., inability to display appropriate behaviour), and lack of similarity or common interests with one's own peer group [45,66,70,71,74]. Typically developing peers could also be barriers themselves by forgetting about peers with disabilities, deciding not to invite them to play [66], being reluctant to assume the extra responsibility required when interacting with children with disabilities [71], and indicating a preference to be with friends in their friendship group [71]. Typically developing peers also noted that peer influence (e.g., peer

reactions and thoughts on what is socially acceptable) plays a significant role when deciding whether to develop a friendship with someone with a disability [45,71]. Physical barriers (e.g., living far away from friends, wheelchair inaccessibility of their own house) and dependence on parents for transportation were also noted as barriers to spending time with friends with a disability [54,68,70].

Supports. Peers without disabilities perceived school and, more specifically, studying in the same classroom, as an appropriate setting (e.g., access, proximity) to get to know peers with disabilities [45,71,82]. Educating about disabilities and creating opportunities to participate in the same activities were seen as the school's responsibility [45,71]. Group-based approaches to learning (e.g., peer tutoring, cooperative learning) and special school services (e.g., support rooms where children with disabilities receive additional help) were considered facilitators of social inclusion [55,71]. The facilitation of friendships by school professionals (e.g., teachers, school psychologists) by teaching all students how to interact with each other [45] was seen as important. In one study, typically developing students reported that adults can act as interpreters or mediators for a child with a disability and that classroom interaction can be more positive because paraprofessionals discourage harassment or belittling [71]. In another study, staff were observed initiating social interactions between children with and without disabilities directly or indirectly [62]. Direct approaches involved asking the child with a disability to perform an activity with a peer or taking the child to play next to a peer, whereas indirect approaches involved interpreting what the child with a disability wished from a situation as well as helping, modeling actions children could try with others, or just being there with the child [62]. Peers indicated they enjoyed providing support (e.g., physical assistance, providing instructions,

looking out for one another), considered supports positive for both the child with a disability and themselves, and valued their role in facilitating friendships [45,66,68].

Typically developing peers also recognized the significant role parents of children with disabilities play in facilitating social inclusion [45,70]. In one study, typically developing peers indicated seeing their friends outside of school but that this necessitated help from the parents of the child with a disability in terms of access around stairs, seating, and travel [70]. In another study, typically developing students indicated believing that parents are instrumental in facilitating friendships and that parents should work with schools, teachers, support groups and youth organizations to facilitate friendships [45].

Interactions with peers. Outside of school, typically developing peers reported spending little time with peers with disabilities, and when they did (at parties, sleepovers, trips to movies or shops), this was facilitated by parents [70,71]. However, they reported trying to engage with peers with disabilities when at school [70,71]. In addition to peer reports of engaging with children with disabilities, such interactions have also been observed and documented in the literature. For example, in one case study examining the relationship between a child with severe disability and a typically developing peer, the researcher observed several occasions of the peer seeking out and engaging with the child with a disability: sitting with him during lunch, playing with his hands, standing in front of him and making faces at him [60]. Although children with disabilities reported engaging in different types of activities relative to their friends without disabilities (e.g., children with disabilities more frequently participated in adapted sport or sedentary behaviour, such as video games, than those without disabilities), typically developing

peers reported celebrating their friends' skills and engaging in quieter pastimes (e.g., crafts, board games, television) when with peers with disabilities [68,70].

Friendships. Notwithstanding barriers, typically developing peers reported that forming friendships with peers with disabilities was possible, though not easy, and that these friendships were beneficial to both students with and without disabilities [45]. Typically developing children reported that disability or differences in their peers ignited their initial interest in forming friendships and that altruism, liking to help people, feeling good for helping, and recognition for helping were motivators for initiating friendships [45,70]. Qualities of the typically developing peer (e.g., tendency to attach to peer with disabilities, need to alleviate loneliness) and of the peer with disabilities (e.g., engaging personality, being seen as a nice person) also influenced friendship motivation [70]. Typically developing peers noted that friendships with children with disabilities: (1) were not reciprocal; (2) required patience, a strong sense of obligation, and responsibility; (3) relied on mutual understanding, intimacy, and trust; and (4) were facilitated by similar interests [68,70,71].

Friendship roles. In their relationships with children with disabilities, typically developing peers reported assuming various roles that included: carer, helper, companion [60,64,70,71], protector [57,70,71], communicator and facilitator [70,71]. When helping students with disabilities, typically developing peers showed empathy, protectiveness, and support [78]. Further, these peers saw acceptance of differences, recognition of abilities and challenges, and respect as important to promoting social inclusion and establishing relationships with children with disabilities [68]. Typically developing peers deemed friendships with children with disabilities as important, irrespective of their recognition of challenges associated with such relationships [70]. As such, typically developing peers reported using various strategies to

promote social inclusion and suggested strategies for use by peers as well as teachers (see table 4).

[Insert table 4]

Finding 2: Experience of social inclusion for children with disabilities. This finding details the perspectives of children with disabilities regarding their feelings of social inclusion and acceptance, interactions with others, barriers and supports encountered, and how they counter disablement.

Feelings of social inclusion and acceptance. Whereas some children with disabilities reported feeling included, having a positive sense of belonging, and feeling their peers treated them like anyone else [46,79,81], others reported feeling excluded and lonely [48,65,79]. “Feeling included” was associated with having friends, having support from friends, being invited to play, having opportunities to participate in activities, and having a sense of legitimacy as a participant [50,63]. Children with disabilities were observed initiating and participating in social interactions and activities with peers: talking, telling jokes, and laughing together [50,56,79]. One study found that feelings of legitimacy and inclusion depended on how children felt about their activity roles (e.g., making contributions, having important roles) as well as their perspectives of how others viewed and treated them [63]. Having multiple disabilities and feelings of loneliness or not fitting in were also identified as negatively influencing a sense of social inclusion [81].

In terms of social acceptance, studies report varying degrees to which children with disabilities felt accepted by their peers. For example, whereas one study found that children with disabilities experienced equivalent acceptance as their typically developing peers [41], other

studies found children with disabilities had difficulty being accepted [77,81] or were less accepted than typically developing peers [40,80]. Indeed, some studies have found that children are more likely to include a typically developing child or doll in play activities than a child with a disability [74-76]. However, children with disabilities reported feeling accepted (42%) and fitting in (40%) “quite a lot” [81]. Their sense of value and acceptance was associated with academic achievement [58], whereas their sense of social acceptance was associated with social participation in leisure time [42].

In addition to reports of feeling accepted, children with disabilities, however, also reported feeling different, being aware of their difference, and having to work hard to keep up in with their peers [48,50,56,57,59,66,81,83]. Children were also aware of being treated differently by typically developing peers and teachers and of differences in support service needs as compared to those without disabilities [56,66]. They also reported feeling lonely, being an outsider, and not feeling at ease with peers [40,50,54,56,58,64,65,81,83]. In one study, students with disabilities reported feeling lonely when eating whether by themselves or with a group [81]. In another study, children with disabilities indicated choosing to be separate from their peers because their own interests differed from those of their peers [58]. School policy and peers’ actions also contributed to these experiences of social isolation [58].

Interactions with peers. Children with disabilities reported having limited contact with the social world outside of home and school (with people in general) and limited opportunity to engage with peers in typical childhood activities, such as birthday celebrations [47,48,80]. They reported interacting and spending a great proportion of their time with adults, whether at home, school, or local shops [47,50,81]. They also reported interacting with siblings (their closest

relationship) and classmates [47,81]. One study found that students with autism spectrum disorders and sensory and/or motor limitations had significantly less interaction with their peers at school than typically developing children [44]. However, although children with disabilities reported enjoying interacting with classmates, being seen as a “baby” and being “mothered” by peers was not experienced positively [67,81]. Outside of school, children with disabilities reported participating in solitary activities at home (e.g., computer games, watch TV, read books) as well as group activities, such as swimming, but reported rarely participating in organized sport [47,68]. One study found that among children with disabilities, their most frequent activity was school work, followed by talking or texting [81]. Participation in extra-curricular activities (e.g., choir, excursions) and “doing nothing” were reported equally in terms of frequency and followed talking and texting [81]. Children with disabilities rated “doing nothing” negatively in terms of loneliness, enjoyment, fitting in, and acceptance [81]. That is, when “doing nothing”, children reported feeling the loneliest, enjoying themselves the least, feeling they fitted in least, and feeling accepted the least [81].

Friendships. Some children with disabilities reported valuing friendships and longing for meaningful friendship connections [48,52,58,59,61,64], while others expressed little motivation to make new or strengthen existing friendships [65]. Some children reported happy and positive relationships with “best friends” who did not have a disability [57], whereas others reported negative experiences, including not having a single friend and feeling lonely [61,81,83]. Although children with disabilities did form friendships [64,78], they reported having fewer friends than their typically developing peers, and fewer peers considered them friends [59,78-80]. However, children with disabilities overestimated the number of friends they have [40]. When asked about their friends, children with disabilities listed parents, siblings, classmates,

younger children, pets, researchers, and other adults that provide support, such as educational assistants, and teachers [47,65,67]. Whereas one study reported children with disabilities consistently play, seek, and accept help from familiar playmates [62], another study found these children do not consistently play with the same playmates, and that similar play interests and personalities influence choice of playmates [67].

In terms of the characteristics and quality of friendships, children with disabilities indicated companionship, sharing similar interests, being caring and kind, helping and supporting one another (e.g., friends providing class notes or defending them from harassment), and accepting individual differences [47,52,53,57-59,61,64,81] as important attributes of friendships. Sharing similar interests facilitated friendships [53,58,61]. In one study, children noted that best friends served as sources of instrumental (e.g., helping with homework) and emotional (e.g., advice on how to get along with peers) help and guidance [68]. In friendships where both children have a disability, being able to relate and engage in the same adapted activities facilitated experiencing a sense of belonging and strengthened the friendship [46,48]. Friendship challenges reported by these children include difficulties in maintaining peer interactions and friendships and managing or dealing with conflict with peers [48,52,65,79].

Barriers and supports.

Barriers. Children with disabilities reported encountering disablement in school structures and practices, peer relations, and the sense of self. Disablement related to school structures pertained to accessibility of schools, disabling interactions with teachers (e.g., being called names, being subject to increased surveillance), and challenges in how teachers interpreted their agency and supported them in class [56,57]. Practices of schooling such as “ability

grouping” [57] and being separated from peers for being disruptive [56,58,66] were perceived to limit interactions with peers. Disablement related to peer relations included being rejected, bullied, and monitored by peers, being called names, and being socially isolated [48,54,56,57,61,66,79,83]. These experiences had a negative impact on children’s psycho-emotional well-being (e.g., feeling stigmatized, stressed, controlled, dependent) [57,66] and sense of self [57,58]. In one study, children with disabilities indicated it was hard for them to maintain a positive self-identify when peers highlighted their differences [58]. In another study, experiences with peers led children with disabilities to consider their sense of self and resist identity imposed on them by peers [57]. Self-disclosure was a way to present themselves in the most favourable light and was also a reaction to fear of stigma or rejection [57]. Whereas some children indicated that disclosing was reserved for friends with the same diagnosis or those they could trust [70], others preferred not to self-disclose [48,57]. Additional barriers encountered and identified by children with disabilities are noted in table 5.

[Insert table 5]

Children with disabilities used a variety of strategies to counter disablement and facilitate social inclusion. These are listed in table 6.

[Insert table 6]

Supports. Supports experienced by children with disabilities are listed in table 5. Some children with disabilities experienced supports as desirable, whereas others deemed such supports as undesirable. Supports that were considered desirable were those considered good for their development and/or associated with positive consequences (e.g., removed restrictions, allowed them to participate in activities, facilitated social interactions, such as studying together in same classroom) [50,66,68,82]. In one study, children with disabilities associated the

following academic supports with positive academic outcomes: one-on-one support, clear and effective teaching, making the subject interesting, having a friendly teacher, and sitting with peers to work on projects together [43]. Reasons for experiencing supports as undesirable included wanting to be independent [50] and experiencing the support as: stigmatizing; as additional control (e.g., proximity of support person prevents them from chatting with peers); or as enhancing a feeling of dependence or inadequacy [43]. Negative reactions from classmates (e.g., peers being jealous because child gets extra help) [50], perceiving the support as an obstacle to making friends [43], missing out on preferred activities [50], and dreading the extra instruction or use of devices [66] also negatively influenced the way children experienced supports.

Discussion

This is the first mixed-methods systematic review that sought to advance our understanding on the social inclusion experiences of both children with and without disabilities in a wide range of community settings with attention to identifying social inclusion strategies used by peers without disabilities. Our review and analysis of 45 studies (from January 2006 to July 2018) enrich our understanding of the social inclusion experiences of children with and without disabilities, *as reported by children themselves*, in several critical ways. Firstly, the findings shed light on the social inclusion experiences of children with disabilities including feelings of inclusion and acceptance, their relationships with peers, and barriers and supports, from their perspectives. Secondly, the findings provide information regarding the influence of disability type (e.g., physical, social, affective) on typically developing peers' responses (e.g., acceptance vs. rejection), peers' explanations for inclusion/exclusion in play, peer relationships

with children with disabilities, and barriers to social inclusion and supports, as perceived by peers themselves. Finally, through this work we are also able to highlight: (1) strategies used by typically developing peers to promote inclusion, (2) strategies used by children with disabilities to counter disablement and facilitate inclusion, and (3) implications for research and practice.

The findings of this review provide evidence that despite society's efforts to promote social inclusion, children with disabilities continue to report feeling lonely and excluded, having limited contact with the social world outside of home, and encountering systemic barriers (e.g., bullying, discrimination). They also report experiencing supports as undesirable, particularly when supports are associated with feelings of dependency and stigmatization. In fact, children with disabilities reported that the very supports put in place to increase their sense of inclusion can actually become obstacles to making friends or participating in preferred activities, thereby yielding significant unintended consequences, including negatively impacting children's well-being and sense of self. These insights demonstrate the critical need to evaluate the implementation of such supports that, although well-intended, may not be positively impacting perceived social inclusion among children with disabilities.

The results of this systematic review also show that despite the implementation of inclusionary practices in educational settings, typically developing peers continue to spend limited time with peers with disabilities outside of school. Thus, the impacts of education-based policies on social inclusion opportunities and the sense of inclusion outside of the academic world appear limited for children with disabilities. Disability-related challenges (e.g., communication difficulties, lack of ability), peer influence, and physical barriers (e.g., wheelchair inaccessibility of their own home) make it difficult to spend time with children with disabilities. The findings also suggest that typically developing peers are more likely to reject

peers with disabilities not only when the disability interferes with participation (e.g., ability, use of wheelchair) but also when the disability is invisible or affects social problem solving or emotional/affective regulation (e.g., physical aggression, difficulty with social skills).

Irrespective of these challenges, some typically developing peers report not only engaging with children with disabilities at school (and using various strategies to promote social inclusion) but also report that such relationships are valued and important [70]. These findings raise important implications for research and practice.

The reasons for exclusion (e.g., disability interferes with participation, affects social problem solving or emotional/affective regulation) and the barriers to social inclusion (e.g., peer influence), as perceived by typically developing peers, highlight the need for disability education for school-aged children, parents, and teachers. Disability education for typically developing peers in particular is critical in order to remove attitudinal barriers faced by children with disabilities and is supported by research, which has shown that such educational interventions can positively impact typically developing peers' attitudes regarding disability [15]. The review also highlighted supports perceived as *barriers* to social inclusion (e.g., teacher assistance) by children with disabilities as well as their reasons for experiencing supports either positively or negatively (e.g., barriers). For example, supports were considered desirable when they were associated with positive consequences (e.g., support removes restrictions in activities, facilitates relationships). Therefore, promoting the positive consequences (e.g., can help with work and will only be for a few hours) associated with supports that are perceived as barriers (e.g., teacher assistance) may foster more positive attitudes towards such supports for children with disabilities.

As noted in this review, typically developing peers report using various strategies to foster social inclusion. These insights underscore the importance of incorporating children's perspectives in activities and programs aimed at promoting social inclusion. These strategies can be useful to professionals and parents who wish to enhance the social inclusion experiences of children with disabilities. The fact that peers' explanations for inclusion pertained to sharing, fairness, and a lack of experience on the part of the child with a disability suggests that promoting equity and giving peers information about the limited participation of children with disabilities may facilitate social inclusion [74].

Future Research

This review focused on the social inclusion experiences of children with and without disabilities, as reported by children themselves. Future work is needed to synthesize the literature regarding the experiences of inclusion and strategies for its promotion from the perspectives of other individuals, including siblings, professionals who support these children, and parents in order to more fully inform how best to ensure social inclusion for children with disabilities in everyday life.

In the current review, very few studies examined the social inclusion experiences for children with or without disabilities outside of the educational setting. Thus, the results of this review highlight the need for research on the social inclusion experiences of children in settings other than the school, such as in the contexts of recreation and leisure (e.g., games, sports, arts), community (e.g., volunteering, religious activities/organizations), and employment (e.g., older children who work). Moreover, there is a need for more longitudinal studies documenting how children's experiences and needs are influenced by age and how they change over time,

including during the transition to adulthood [84,85]. Such studies are crucial to understand the longer-term impact of a lack of social inclusion on individuals with disabilities across development (e.g., childhood to adulthood) and vantage points (e.g., physical and mental health and well-being, educational and employment status).

Despite the broad scope of this review, very few studies referenced children with disabilities' experiences with assistive devices and their potential impacts on their sense and experiences of social inclusion. This is somewhat surprising, given that the use of assistive devices, including those for use in daily living (e.g., prosthetic/orthotic devices), indoor/outdoor mobility and transportation (e.g., walking devices, wheelchairs), communication (e.g., hearing aids, voice prostheses), and education (e.g., computer technology for the acquisition of knowledge), is common for many children with disabilities, particularly in developed countries. In particular, there is a lack of research on the extent to which use of some of these devices are perceived as barriers and, if so, in what contexts, from the perspectives of children using them and their peers.

The present review sought to synthesize the global literature regarding the experiences of social inclusion for children with disabilities and their typically developing peers from their viewpoints. Importantly, very few of the 45 selected studies were conducted outside North America or Europe. For example, only a limited number of studies were from Asian countries (two studies from Japan; one from Hong Kong), and no studies from Latin America or Africa met the criteria for inclusion in the review. Moreover, none of the studies focused on the social inclusion experiences of Indigenous children. Future research is needed to document the social inclusion experiences of children across various cultures. Such studies are warranted to uncover

themes that may be common to feelings and experiences of inclusion, irrespective of culture, as well as to identify culturally specific aspects of social inclusion.

Over half (60%) of the studies in this systematic review used qualitative methodology, reinforcing the need for more quantitative and mixed-methods studies. As well, the qualitative studies relied mainly on the use of interviews. Combining interviews in conjunction with arts-based participatory methods (e.g., photovoice, artwork, and other visual methods) as Howard et al. [53] did, would be of value in future mixed-methods and qualitative studies. Arts-based participatory methods can be powerful research tools, especially amongst children, and can elicit a deeper awareness of the meanings behind and contexts within descriptions of one's lived experiences [86,87]. Data gathered from participatory methods can effectively augment data collected from more traditional qualitative approaches (e.g., interviews), and, thereby, lead to a greater understanding of one's lived experiences [86,87].

Finally, future research should also explicitly consider the impact of societal stigma on typically developing peers' behaviors and attitudes toward children with disabilities. Research that focuses on the strategies that peers can and do use to promote social inclusion of children with disabilities may inadvertently reinforce the perception that disability as a 'problem' that resides with the child and that social exclusion is perpetuated solely by children, and hence that solutions should be targeted at this population. Recognizing broader societal influences on behaviors such as bullying, discrimination, and segregation, as well as the role of adults in facilitating and modeling socially inclusive behaviors, is needed in future work.

Limitations of Data Synthesized

This systematic review took a rigorous approach to identifying published studies on the experiences of social inclusion for children with and without disabilities from their point of view. Our mixed-methods approach allowed us to synthesize findings from qualitative, quantitative, and mixed-methods studies, resulting in a more integrated understanding of the social inclusion experiences of children with and without disabilities. Of the studies synthesized herein, some limitations warrant further discussion and highlighting.

First, although the scope of this review was intended to be broad in terms of contexts (e.g., community, recreation, education) of social inclusion, most of the articles retrieved examined inclusion in the school setting, with very few studies taking place in community settings where children interact (e.g., playgrounds, community centres, religious settings, peers' homes). Thus, little is known about the social inclusion experiences of children with and without disabilities in those environments.

Second, very few of the studies reviewed examined experiences of social inclusion over time. Our search and selection strategy revealed only three studies on social inclusion experiences for children with disabilities and/or their typically developing peers were longitudinal [55,57,69]. Additionally, the variety of age groups included in individual studies, the diversity in study setting and the depth/detail of data reported limited the ability to conduct an analysis of differences in social inclusion experiences by age.

Third, some of the included studies provided an incomplete definition of the setting in which the study took place. For instance, some studies were conducted in schools with a full-inclusion policy in effect [40], whereas others were conducted in mainstream schools [41,50,51]. However, more complete descriptions and operational definitions of school settings (e.g.,

mainstream school vs. school with a full-inclusion policy) were seldom provided, thus limiting our ability to compare study findings.

A fourth limitation of the selected studies relates to study quality in some cases, as seven (16%) of the included studies were considered of low to moderate quality (scores ranged from 25% to 50%). Nonetheless, as these articles contained data relevant to our research questions, they were included. Therefore, the quality of these articles should be kept in mind when evaluating the findings.

A fifth limitation relates to the nature of analyzing published research. Given that this review analyzes the published findings of other authors' research, rather than the rich data each study generated, a detailed comparative analysis of the social inclusion experiences of children with disabilities and their typically developing peers was not possible.

Finally, studies evaluating programs or interventions designed to promote social inclusion were not included in this systematic review, as the focus of the present review was not on program or intervention evaluation but rather on the experiences and strategies used by typically developing peers and children with disabilities to promote social inclusion from their viewpoints.

Conclusion

This mixed-methods systematic review is important as it revealed that despite the implementation of inclusionary practices in educational settings, children with disabilities continue to feel excluded and encounter systemic disablement. As well, although typically developing peers report using various strategies to foster social inclusion of children with disabilities, they nonetheless continue to spend limited time with peers with disabilities outside

of school. These two findings reinforce that more needs to be done to reduce barriers to inclusion both inside and outside educational settings for children with disabilities.

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Declaration of Interest

The authors report no conflicts of interest.

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Implications for Rehabilitation

The perspectives of children with and without disabilities need to be integrated in activities and programs aimed at promoting social inclusion.

Teaching social inclusion strategies to children with and without disabilities is needed to help them deal with barriers.

In addition to educational settings, rehabilitation clinicians need to promote social inclusion strategies in other contexts such as recreation and leisure, community, and employment contexts.

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Table 1. Quantitative Studies Included in the Systematic Review

Author, Year/ Country	Purpose	Setting, Age &/or Grade	Data Collection Method	Number (% Female)	Disability Type	Main Findings	Limitations
Azad et al. [38] (2017) USA	Examine how race, disability status, & grade affect friendships and social networks.	Elementary school 4-12 yrs Mean age: 7.9 yrs K - Grade 5	Peer nominations	n = 170 (11.8%) 85 children with Autism Spectrum Disorders (ASD); 85 typically developing children	ASD	<ul style="list-style-type: none"> • Race, presence of ASD, & grade influenced the number of friendship nominations that children received. The presence of ASD influenced network centrality. • African American or Latino children with ASD in the upper elementary grades received fewer friendship nominations than White typically developing children in the lower elementary grades. • Latino children with ASD were at the highest risk of social isolation. 	<ul style="list-style-type: none"> • Examination of other variables (gender homophily, racial composition of the classroom, SES) was not possible given small sample size. • Given study design, examination of changes in socialization over time was not possible.
de Boer et al. [39] (2013) (Netherlands)	Examine which child, peer, and classroom variables relate to peer acceptance and friendships of students with	General primary education 8-11 yrs Grades 5-8	Sociometric data collected via self-report survey	n = 1050 985 students without disabilities; 31 students with attention-deficit	ADHD, ASD	<ul style="list-style-type: none"> • Boys with disabilities more likely to be accepted when class attitude is positive. • Boys with disabilities less likely to be accepted in classes and acquire friendships 	<ul style="list-style-type: none"> • Bi-directionality of findings: do social behavior issues of students with disabilities lead to less peer acceptance or does the latter

	disabilities in general primary education.			hyperactivity disorder (ADHD); 34 students with ASD		<p>with teacher assistance.</p> <ul style="list-style-type: none"> • Girls with disabilities less accepted when they exhibit more social problems. • Girls with disabilities more likely to be accepted when girls' attitudes towards disabilities are positive. 	<p>result in social behavior issues?</p> <ul style="list-style-type: none"> • Small sample of students with ADHD and ASD limits generalizability. • Limited number of independent variables examined.
O'Rourke and Houghton [43] (2008) (Australia)	Examine the perceptions of secondary school students with mild disabilities to the academic and social support mechanisms implemented in regular classrooms.	<p>Inclusive secondary schools (regular and education support environments in schools)</p> <p>Mean age: 15 yrs</p> <p>Years 8-12</p>	Questionnaire	n = 60 students with mild disabilities (35%)	Mild disabilities (diagnoses not specified)	<ul style="list-style-type: none"> • Instructional mechanisms/good teaching practice (clear teaching, making subject interesting, having a friendly teacher) perceived with positive academic outcomes. • Teacher being friendly/well-liked by student perceived with positive social outcomes. • One-on-one support seen as most helpful for academic outcomes but perceived as obstacle to making friends. • Sitting with peers/working on projects together seen as helpful with academic and social 	<ul style="list-style-type: none"> • Students' responses limited to support mechanisms measured by the scale (Student Perceptions of Classroom Support).

						outcomes (e.g., making friends).	
Petry [44] (2018) Belgium	Explore the relationships between attitudes towards peers with a disability at the level of the class & peer acceptance, friendships, & peer interactions of students with ASD or sensory and/or motor limitations (FYS).	Mainstream secondary schools 10-15 yrs Mean age: 13.04 yrs Grade 7	Questionnaire Sociometric nominations & ratings	n = 2013 (45.4%) 1866 typically developing peers; 86 children with ASD; 61 children with FYS	ASD, FYS	<ul style="list-style-type: none"> • Students with ASD & students with FYS were less accepted by peers, had fewer reciprocal friendships, & were less engaged in peer interactions than typically developing peers. • The average class attitude of typically developing peers towards peers with a disability was neutral. However, in some classes, negative attitudes were displayed. • Class attitudes were lower (more negative attitudes) when the inclusion involved students with ASD than when students with FYS were involved. • The relationship between class attitudes & peer acceptance, friendships, & peer interactions of students with ASD & FYS was 	<ul style="list-style-type: none"> • As this was an exploratory study of the moderating role of disability type on the relationship between class attitudes & social participation, more research is needed • This study focused on 3 of the 4 key aspects of social participation. Research on all 4 aspects is needed.

						moderated by type of disability.	
Pijl et al. [40] (2008) (Norway)	Describe the social position of students with and without special needs in regular education settings in Norway.	Primary and lower secondary schools in Norway (full inclusion policy) 9-10 yrs & 12-13 yrs Grade 4 & 7	Sociometric techniques based on peer nomination	n = 989 910 students without special education needs (SEN); 79 students with SEN 491 fourth graders; 498 seventh graders	SEN	<ul style="list-style-type: none"> • Students with special needs less accepted, fewer friendships, and participate less often as members of a subgroup. • Between 15-20% of students with special needs socially excluded. • Rates of isolation higher for students with behavioral (52.2%) and communication (58.3%) problems vs. sensorial/motor impairment (28.5%). 	<ul style="list-style-type: none"> • Students' answers can be subject to social desirability bias. • Nonrandom sample limits generalizability.
Shokoohi-Yekta and Hendrickson [45] (2010) (USA and Iran)	Examine opinions of American and Iranian high school students re: friendships with peers with severe disabilities.	General education inclusive high schools 13-18 yrs	Questionnaire	n = 945 656 American students (51.5%); 289 Iranian students (51.2%)	Severe disabilities focus of questionnaire	<ul style="list-style-type: none"> • Americans felt more strongly than Iranians that friendships with students with severe disability not easy. • Regular class for the entire day seen as most likely facilitator of friendships for both student groups. • Having students work together & arranging social activities where all can participate top strategies to promote 	<ul style="list-style-type: none"> • Nonrandom sample of students limits generalizability. • Self-report bias inherent in survey.

						inclusion for both groups.	
Tuersley-Dixon and Frederickson [41] (2016) (England)	Examined whether social acceptance of students with complex needs by peers varies with visibility of severity of disability, and how successful social inclusion is of students with complex needs.	Mainstream primary schools 5-11 yrs Mean age: 8.92 yrs	Questionnaire	n = 548 20 children with complex needs (40%); 528 typically developing classmates	SEN (20); ASD (1), cerebral palsy (3), Down's syndrome (8), epilepsy (1), Rett syndrome (1)	<ul style="list-style-type: none"> • Number of mutual friendships with classmates, social status, acceptance, and rejection of children with complex care needs similar to typically developing peers. • Social acceptance of children with complex needs by typically developing peers higher in the presence of visible than non-visible disability. • Social acceptance higher for children with more severe difficulties. 	<ul style="list-style-type: none"> • Small sample size limits generalizability. • Participants received high level and quality of support from outreach program. Whether similar findings with less support is unknown.
Wendelborg and Kvello [42] (2010) (Norway)	Explore the relationship between educational arrangements, social participation during leisure time, and perceived social acceptance and peer intimacy among disabled children.	Regular schools in Norway 11-13yrs Grades 5-7	Questionnaires completed by parents and children who were able to do so	n = 85 students with disabilities (43.5%)	Physical disability, intellectual disability, other disabilities	<ul style="list-style-type: none"> • Social participation in leisure time has direct effect on perceived social acceptance and peer intimacy. • Type & degree of impairment & hours of special education have indirect effects on social participation in leisure time through classroom participation. 	<ul style="list-style-type: none"> • Use of self-report measures excludes children with more severe disabilities. • Many children completed questionnaires with a parent, which may have influenced their responses.

						<ul style="list-style-type: none">• Type & degree of impairment has no direct effect on perceived social acceptance & peer intimacy.• Type & degree of impairment has an indirect effect on perceived social acceptance & peer intimacy via influencing educational arrangements (e.g., hours of special education,) which, in turn, influences social participation in leisure time.	
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Table 2. Qualitative Studies Included in the Systematic Review

Author, Year/ Country	Purpose	Setting, Age and/or Grade	Data Collection Method	Number (% Female)	Disability	Main Findings	Limitations
Anderson et al. [70] (2011) (Australia)	Examine existing friendships between typically developing children and children with disabilities and use augmentative and alternative communication (AAC).	Primary school and high school 7-14 yrs	Interviews	n = 6 students without disabilities (50%)	Cerebral palsy	<ul style="list-style-type: none"> • Formation and continued success of friendships influenced by: social values, knowledge of and attitudes to disability, motivations (rewards/benefits) for friendship, personality characteristics of children with and without disabilities in the dyads. • Having a friend with a disability is different in terms of learning, roles, interactions, shared time, helping. 	<ul style="list-style-type: none"> • Children who use AAC were not interviewed.
Asbjornslett et al. [46] (2012) (Norway)	Examine how Norwegian children with physical disabilities experience friendship during the transition between primary and secondary school.	Primary school 12-13 yrs	Life mode Interviews	n = 15 children with impairments (40%)	Physical impairments (14), visual impairment (1)	<ul style="list-style-type: none"> • Two themes: (1) Different kinds of friends: friends with disabilities, friends without disabilities, technology-mediated friendships; (2) Qualities of friendships: understanding, intimacy, trust, mutuality and 	<ul style="list-style-type: none"> • Not all children participated in interviews at multiple time points during the transition process • Rigor of data analysis process is unclear

						friendships with children with and without disabilities.	
Batorowicz et al. [47] (2014) (Canada)	Examine perspective of children who use aided communication and their parents on social participation, communicative interactions, and relationships.	Community (recruited from rehabilitation centers) 5-14 yrs Mean age: 10.75 yrs	Interviews	n = 16 (75%) 8 children with disabilities; 8 parents of children in study	Cerebral palsy (7), not specified (1)	<ul style="list-style-type: none"> • Five themes: (1) Communication partners & strategies (2) Access to aided communication (3) Participation in society (4) Interaction opportunities (5) Social relationships 	<ul style="list-style-type: none"> • Majority of children in segregated classrooms. • Although children were asked about their experiences, they provided brief answers.
Cook et al. [48] (2018) (UK)	Explore the experiences of learning, friendships, and bullying of girls with autism.	Mainstream and special schools 11-17 yrs	Semi-structured interviews	n = 22 11 children with ASD (100%); 11 parents (90.9%)	ASD	<ul style="list-style-type: none"> • Interviews revealed themes relating to: (1) motivation to have friends, (2) challenges they face, and (3) masking their autism to fit in which had both positive (solution to social difficulties) & negative consequences (if led to misdiagnosis). • The girls were motivated to have friends but encountered social difficulties (e.g., social isolation, bullying). 	<ul style="list-style-type: none"> • All participants could communicate clearly. The findings pertain to this group and cannot be transferred to others with varying levels of communication skills. • The all-female child sample did not allow for comparison across gender.
Correa-Torres [49] (2008) (USA)	Study social experiences of students with deaf-blindness,	Inclusive schools 7-9 yrs	Interviews Observations	n = 9 3 children with	Visual & hearing disabilities,	<ul style="list-style-type: none"> • Nature of social experiences • Strategies used by adults to promote and 	<ul style="list-style-type: none"> • Teachers & paraprofessionals perceived educational setting

	their sighted peers with no hearing impairment, and adults.	K – Grade 4	Examination of artifacts	disabilities (33.3%); 3 parents (100%); 4 staff (e.g. intervener; para-professional) (100%); 4 teachers (100%)	additional disabilities	facilitate interactions and socialization among deaf-blind students and their nondisabled peers. <ul style="list-style-type: none"> • The benefits and challenges of inclusion • Reality of inclusion in schools selected by American 	as inclusive but observations revealed that deaf-blind students were more mainstreamed than included in school & classroom activities. <ul style="list-style-type: none"> • Time for observation was limited. • Potential Hawthorne effect. • No intra- or inter-observer agreement.
De Schauwer et al. [50] (2009) (Belgium)	Examine disabled children's experience of inclusive education.	Mainstream school 5-17 yrs	Observations Semi-structured interviews	n = 15 children with disabilities (73.3%)	Down syndrome (2), cerebral palsy (6), motor problems (2), intellectual disability (3), intellectual disability & ADHD (1), Noonan syndrome (1)	<ul style="list-style-type: none"> • Themes: (1) Just another kid (2) Capacities & disabilities (3) Impairments & difficulties (4) Belonging (5) About school (6) Social relationships with other children & young people (7) Help & support in the class & at school 	<ul style="list-style-type: none"> • Strategies used to interview children unable to communicate verbally were not clearly described; possible influence of parent or staff member on these children's responses
Dolva et al. [51] (2010) (Norway)	Explore peer interaction in mainstream classes that included students with Down syndrome and their peers	Mainstream Primary schools 10 yrs	Field observations Interviews	n = 6 children with Down's syndrome (33.3%)	Down's syndrome	<ul style="list-style-type: none"> • Two main categories: (1) Equal interaction between students with & without Down syndrome (2) Unequal interaction between students with 	<ul style="list-style-type: none"> • By focusing on interactions that occurred and excluding initiations, unsuccessful attempts, and solitary activity, results may provide

	without disabilities and to identify enabling conditions.					<p>& without Down syndrome.</p> <ul style="list-style-type: none"> • Enabling conditions: found necessary for interactions to take place: (1) Students' shared understanding of what the activity entailed (2) Activity is within students' performance range. • Peers support in interaction: Students modified activities/ tasks or their behavior to include student with Down syndrome. 	an inaccurate portrayal of peer interaction.
Faggo and Webster [52] (2017) Australia	Explore the social experiences (relationships with female peers, expectations & qualities of social interactions and friendships) of adolescent females on the autism spectrum.	Mainstream secondary school 13-17 yrs	Semi-structured interviews	n = 7 children on the autism spectrum (100%)	Asperger's syndrome (4), ASD (3)	<ul style="list-style-type: none"> • Participants' interviews revealed 2 main themes: Social interactions are important and social interactions are difficult particularly when involving groups of peers. • Participants consider friendships with other girls important and rewarding. Although they find socialization to be difficult at times, they seemed able to manage their challenges. 	<ul style="list-style-type: none"> • Data were not sought from participants' female peers. Thus, it is not possible to assess whether participants were involved in true reciprocal relationships. • It cannot be guaranteed that participants' responses were not influenced by their parents.

						<ul style="list-style-type: none"> • Participants reported uncertainty about the expectations of others for them. • Trust, honesty, reciprocity, & support in friendships were valued by participants. 	
Howard et al., [53] (2006) (USA)	Explore friendship perceptions of an adolescent with Asperger syndrome.	<p>Recruited from community social skills group for adolescents with ASD</p> <p>12 yrs</p> <p>Grade 7</p>	<p>Semi-structured interviews</p> <p>Photographs taken by the adolescent</p> <p>Quality of Life & friendship measures</p>	n = 1 child with Asperger syndrome (0%)	Asperger syndrome	<ul style="list-style-type: none"> • Three themes: <ol style="list-style-type: none"> (1) Characteristics of a friend (2) Family involvement in facilitating & supporting friendships (3) Enjoyment of friendships & interest in maintaining them 	<ul style="list-style-type: none"> • Participant was home schooled, which may have impacted friendship patterns. • Data based on interviews, not actual observations.
Kalymon et al. [71] (2010) (USA)	Examine factors that contribute to the development of positive peer relationships between middle-school students with and without disabilities.	<p>Mainstream middle school</p> <p>13 yrs</p> <p>Grade 7</p>	Semi-structured interviews	n = 8 typically developing children (0%)	Disabilities requiring special education services	<ul style="list-style-type: none"> • Five themes: <ol style="list-style-type: none"> (1) Perceived similarity in interests & ability (2) Role of the adolescent without disabilities (3) Amount of time students with & without disability spend together in & out of school (4) Peer reactions towards students with disabilities 	<ul style="list-style-type: none"> • Findings are based on perceptions of boys without disabilities. • Participants recruited from school that was exemplary in terms of inclusion and level of contact between peers with and without disabilities. • Restricted range of classmates with disabilities discussed by participants

						<p>(5) Adults' behavior towards students with disabilities.</p> <ul style="list-style-type: none"> • Participants noted elementary school context facilitated friendships more than middle school. • Amount of time spent with peers with disabilities outside of school was minimal. 	<p>(participants limited their discussion to classmates with significant physical or intellectual disabilities or severe behavioral challenges.</p>
Kamenopoulou [54] (2012) (United Kingdom)	Explore social inclusion and participation of 4 deafblind students	Mainstream secondary educational setting	<p>Semi-structured interviews</p> <p>Observations of peer interactions</p> <p>Semi-structured questionnaire</p>	<p>n = 16</p> <p>4 students with deaf-blindness, 8 teachers, 4 parents</p>	Deaf-blindness	<p>Themes:</p> <ul style="list-style-type: none"> • Issues with Social Inclusion: (1) Lack of mutuality of relationships; (2) Bullying; (3) Communication breakdowns; (4) Leisure time spent alone or family. • Barriers to Social Inclusion: (1) Person-related: Visual & hearing needs, Difficulties with independent movement; (2) Context-related: Poor social skills, Strategies used to meet learning needs & facilitate access & greater inclusion, Unhelpful 	<ul style="list-style-type: none"> • Findings may not be relevant to other deaf-blind students, as all participants were oral communicators and able to cope well in mainstream educational settings • Interviews with students did not elicit rich narratives, possibly due to need to adapt interview techniques more specifically for each participants' needs and lack of repeated interview sessions • Potential for presence of adults in interview setting to influence students' responses

						<p>working relationships at school.</p> <ul style="list-style-type: none"> • Facilitators of Social Inclusion: (1) Awareness of deaf/blindness & implications for communication; (2) Good working relationships at school; (3) Preparation of school context prior to mainstream placement 	
Kayama and Haight [55] (2013) (Japan)	How Japanese children with developmental disabilities experience the new formal system of special education & how they actively create peer relationships.	Elementary school in which special education services for children with disabilities were offered 7, 8, & 11 yrs	<p>Participant observation</p> <p>Individual interviews</p> <p>School records review</p>	n = 3 children with disabilities (0%)	Asperger's (2), learning disability (1)	<ul style="list-style-type: none"> • Educators emphasized importance of peer groups in socializing & educating all children • Three ways children with developmental disabilities connected with peers: (1) Learning to self-regulate contact with peers; (2) Connecting with peers through social interests; (3) Connecting with peers through play. 	<ul style="list-style-type: none"> • Limited pool of potential participants due to parents' sensitivity to stigma of disability
MacArthur et al. [56] (2007) (New Zealand)	Explore the school experiences of children with disabilities and their agency in a social world where "difference"	Mainstream primary and secondary schools 11-14 yrs	<p>Observations</p> <p>Semi-structured interviews</p>	<p>n = 7 children with disabilities</p> <p>Parents/caregivers, teachers, school principals</p>	Physical, intellectual, and autism related impairments	<ul style="list-style-type: none"> • Children's experiences of difference • Disabled children as social actors at school • Children's agency & bullying • Children's agency & teaching and learning 	<ul style="list-style-type: none"> • No description of data analysis methods are provided

	was experienced negatively.					<ul style="list-style-type: none"> • Agency and children's behavior 	
McMaugh [57] (2011) (Australia)	Explores the educational and social experiences of children with physical disability or chronic illness as they transition to junior high school.	<p>Mainstream primary schools; mainstream and partially segregated secondary schools</p> <p>Mean age: 12.4 yrs</p> <p>Three cycles: Late Year 6 Early Year 7 Late Year 7</p>	Semi-structured interviews	n = 24 children with disabilities	Cerebral palsy (8), cystic fibrosis (4), traumatic brain injury (3), spina bifida (2), other chronic physical illness or physical disability (7)	<ul style="list-style-type: none"> • Three themes: (1) en/counters of disablement in peer relationships; (2) encounters of disablement in the sense of self; and the role of school structures; (3) practices in shaping the transitional experience. 	<ul style="list-style-type: none"> • Some participants transitioned from mainstream primary schools to partially segregated secondary schools while others transitioned to mainstream secondary schools; the experiences of students in these two different environments were not clearly delineated • Data analysis procedures were not explicated
Morrison and Burgman [58] (2009) (Australia)	Explore the experiences of friendship for children with disabilities who attend mainstream Australian schools.	<p>Mainstream urban (8) and rural (2) primary schools</p> <p>8-10 yrs</p>	Semi-structured interviews	n = 10 children with disabilities (40%)	Visual impairment (3), hearing loss (1), ADHD (1), spastic quadriplegia (1), spina bifida (1), post meningococcal disease (1), acquired brain	<ul style="list-style-type: none"> • Five themes: (1) Self-identify (2) Meaning of friendship (3) Classroom experiences (4) Playing together (5) Longing for friendship 	<ul style="list-style-type: none"> • Redundancy of data was not achieved, as original sample did not focus solely on this topic. • Findings may not be applicable to other educational contexts.

					injury (1), spastic diplegia (1)		
Mortier et al. [66] (2011) (Belgium)	Gain an understanding of the effects supports can have from the perspectives of 6 children with special needs and their peers.	Primary and Secondary inclusive schools 9-18 yrs	Semi-structured interviews Focus groups	n = 25 6 children with a disability (66.7%); 19 typically developing peers	Not specified	<ul style="list-style-type: none"> • Children mainly identified positive effects of supports in removing restrictions in activity. • Themes: (1) Impairment effects: areas children were struggling due to receiving supports to reduce impairment effects; (2) Disability effects: Barriers in doing and being due to disability. • Children with a disability & peers were positive about school supports. • Majority of supports aimed at dealing with barriers to activity 	<ul style="list-style-type: none"> • Typically developing peers' responses in focus groups may have been influenced by the presence of their classmate with disabilities
Murphy et al. [59] (2017) UK	Explore relationships as described by adolescents with Autism Spectrum Disorder (ASD) & the development of successful interpersonal relationships for	Community 13-16 yrs	Semi-structured interviews	n = 8 adolescents with ASD (25%)	Asperger's syndrome (6), ASD (1), Autism (1)	<ul style="list-style-type: none"> • Four main themes were found: (1) relationships as a source of support, (2) perceptions of similarity & difference, (3) valued qualities in self & others, & (4) development & maintenance of relationships 	<ul style="list-style-type: none"> • The disconnected nature of the constructs generated by participants made it challenging to discern how one construct linked with another. • While laddering may be a useful way of exploring how constructs might

	these individuals.					<ul style="list-style-type: none"> • Participants viewed relationships in terms of the support & protection they afforded. They perceived similarities & differences between themselves & the important people in their lives. They acknowledged the development of successful relationships to be an active process, supported by humour & shared interests. • Participants valued intelligence, humour, respect & trust within relationships • PCT was found to be a useful approach to elicit rich qualitative data 	connect, with this population it may not be relied upon to generate a hierarchy.
Naraian [60] (2011) (USA)	Explore the relations between a child with disability & his peer to understand the scope & quality of teacher mediation that can facilitate peer	Inclusive elementary setting Grade 1	Participant observation of peer interactions in the classroom Open-ended interviews Field notes	n = 15 1 student with disabilities (0%), 1 typically developing peer (100%), 3 teachers, 2 therapists,	Visually impaired, non-verbal wheelchair user with significant developmental delays not using any formal means	<ul style="list-style-type: none"> • Themes: (1) Knowing Harry: A cause of celebration; (2) Growing pains: Changing relations or changing perceptions; (3) The discursive context of Andrea's relations with Harry; (4) Disentangling threads. 	<ul style="list-style-type: none"> • Majority of data collected from adult perspectives as interviews were not conducted with child with disabilities or typically developing peer

	engagement with children with disabilities.			1 paraprofessional, 1 principal, 6 parents (100%)	of communication		
Nowicki and Brown [72] (2013) (Canada)	Explore how junior level elementary students socially include classmates with learning or intellectual disabilities.	Inclusive elementary schools 9-12 yrs Mean age: 10.42 yrs Grades 5-6	Interviews	n = 36 typically developing children (44.4%)	Learning difficulties	<ul style="list-style-type: none"> Eighty strategies categorized into 7 themes: (1) Involve the teacher; (2) Instructional strategies that can be used by children; (3) Being supportive by helping, encouraging & giving advice; (4) Focusing on similarities, not differences; (5) Modeling appropriate social behaviors & intervening in non-appropriate social behaviors; (6) Structured social interactions that are inclusive; (7) Special programs & activities that are non-inclusive. 	<ul style="list-style-type: none"> Since participants were recruited from a school that is fully inclusive and has been for some time, results may not be transferable to students in other educational environments Possible self-selection bias in sampling
O'Hagan and Hebron [61] (2017) UK	Explore the meaning & nature of friendship among adolescents with Autism Spectrum	Mainstream secondary school 13-15 yrs Year 8 & 10	Semi-structured interviews	n = 9 3 high functioning adolescents with ASC (0%), 3 parents, (66.6%),	Asperger syndrome (2), ASD (1)	<ul style="list-style-type: none"> All students desired friendships & reported experiencing loneliness. Friendships centered on common interests or structured activities (e.g., computer games). 	<ul style="list-style-type: none"> Sampling bias-students were recruited by the school's special education needs coordinator. The all-male sample limits transferability to girls with ASC

	Conditions (ASC).			3 staff members (1 support worker, 1 teaching assistant, head of ASC resource provision)		<ul style="list-style-type: none"> Individual and contextual influences on friendship development included: level of maturity, understanding of social rules, school environment, & peer acceptance. 	<ul style="list-style-type: none"> All participants had high functioning ASC. Studying the friendship development among young people from across the ASC spectrum is warranted.
Parry [62] (2014) (England)	Examine how social connections and friendships between two children labelled with special education needs and their peers develop	Inclusive children's center and nursery school 3.5-4 yrs	<p>Observations</p> <p>Photographs of observed interactions</p> <p>Semi-structured interviews with staff</p>	<p>n = 9</p> <p>2 children with special educational needs (0%), 7 staff members</p>	Hearing impairment (1), speech impairment (1)	<ul style="list-style-type: none"> Themes: (1) Recurrent playmates (playing more regularly with certain peers); (2) Seeking help & engagement from familiar playmates; (3) Interaction with other children (attempts to play with other children); (4) Other children initiating (other children approached children with disabilities). Adult support: children studied often interacted with peers without adult support. Other times, adults were initiating &/or facilitating, peer interactions. 	<ul style="list-style-type: none"> Majority of data collected from adult perspectives (i.e. researcher narratives of play interactions, researcher-generated photographs, interviews with adults about children's friendships)
Parry [67] (2015) (England)	Examine social interactions between children with	Inclusive preschool 3-4 yrs	<p>Play observations</p> <p>Photographs</p>	n = 6 children with special educational needs	Down syndrome (1), language and commun-	<ul style="list-style-type: none"> Themes: (1) Using toys & activities to initiate 	<ul style="list-style-type: none"> Majority of data collected from adult perspectives (i.e. researcher narratives

	special educational needs and their peers within their preschool.		Interviews with staff	Peers, staff members	ication difficulties (2), general learning difficulties (1), Social communication difficulties (2)	play & social contact (2) Using routines to engage other children; (3) Keeping control of exchanges (prolonged & reciprocal play was the result if the focus of the child with disability was followed); (4) Social exchanges seldom involved recurrent playmates ; (5) Sophistication of play or communication skills did not have influence on choice of potential playmates. • Factors influencing choice of playmates: similar play interests & personalities.	of play interactions, researcher-generated photographs, interviews with adults about children's friendships)
Seymour et al. [68] (2009) (Canada)	Investigate friendship in inclusive physical education from the perspective of students with and without physical disabilities.	Reversely integrated primary school (school was originally for students with physical disabilities but now also includes typically	Semi-structured open-ended interviews	n = 16 8 students with physical disabilities (63%), 8 students without disabilities (100%)	Diaplegia (2) hemiplegia (1), neuromuscular disease (2), Quadriplegia (3)	• Four themes: (1) Development of friendship; (2) Best friend; (3) Preferred physical activities & outcomes; (4) Dealing with disability.	• Due to this school's reversely integrated nature, results from this study may not be transferable to schools using other integration/inclusion programs • Gender comparisons could not be made as there were only 3 males in the sample.

		developing children) 9-12 yrs Grades 4-6					
Spencer-Cavaliere and Watkinson [63] (2010) (Canada)	Explore the perspectives and perceptions of children with disabilities regarding inclusion in physical activity (e.g., sports, games, and play)	Community (two sports and activity programs outside the school system) 8-12yrs Mean age: 10.42 yrs Grades 3-6	Semi-structured interviews Reflexive field notes	n = 11 children with disabilities (18%)	Cerebral palsy (5), fine and gross motor delays (1), developmental coordination disorder (1), muscular dystrophy (1), nemaline myopathy (1), brachial plexus injury (1), severe asthma (1)	<ul style="list-style-type: none"> • Three themes regarding children's perceptions of what inclusion is: (1) Gaining entry to play; (2) Feeling like a legitimate participant; (3) Having friends. • All themes associated with feeling included in sports, games, & play. 	<ul style="list-style-type: none"> • Nearly half of participants had cerebral palsy, possibly contributing to shared experiences • Gender comparisons could not be made as there were only 2 females in the sample
Spratling et al. [64] (2012) (USA)	Explore the school age child's perspective about living with a tracheostomy.	Pulmonary clinic in the community 7-11yrs Mean age: 8 yrs	Interview Field notes and reflective journal	n = 5 school-age children with a tracheostomy (20%)	Tracheostomy	<ul style="list-style-type: none"> • Three themes: (1) I'm the only one; (2) Friends are helpful; (3) Just tell them. 	<ul style="list-style-type: none"> • Data saturation not fully determined • Redundancy in data did occur. • Primary investigator knew study participants & families; may have influenced responses, recruitment, & trust of participants. • One participant decannulated prior to

							<p>interview; child's views may have differed from other children.</p> <ul style="list-style-type: none"> • Presence of parents in the interview may have influenced children's responses.
Sumiya et al. [65] (2018) Japan	Explore the experiences of adolescents with autism spectrum disorders of anxiety and loneliness in developing and maintaining friendships at school	Private remedial centers, college-based remedial teaching centers, and special education classes 10-15 yrs	Semi-structured interviews	n = 11 high functioning adolescents with autism spectrum disorders (27%)	Autism disorder (2), Asperger's disorder (7), Pervasive development disorder (2)	Four themes: (1) Social motivation; (2) loneliness; (3) anxiety; and (4) distress.	<ul style="list-style-type: none"> • Use of outdated DSM criteria to confirm diagnosis.
Ytterhus [69] (2012) (Norway)	Studied informal interaction rules negotiated/ practiced by children which led to social inclusion and exclusion.	<p>Nursery schools, primary, and junior high schools that promote social integration</p> <p>3 cycles:</p> <p>3 – 7 yrs</p> <p>9 – 12 yrs</p> <p>13 – 16 yrs</p>	<p>Observation of face-to-face encounters among children</p> <p>Semi-structured interviews</p> <p>Sociometric tests (children in nursery schools)</p> <p>Semi-structured texts about</p>	<p>3 cycles:</p> <p>n = 56 children; 47 without disabilities; 9 with disabilities (56%)</p> <p>n = 100 children; 93 without disabilities; 7 with disabilities (57%)</p>	Not specified	<p>Informal social interaction rules emerged:</p> <ul style="list-style-type: none"> • Prohibiting rules (tell children what not to do): (1) Physically harm peers; (2) Express wrong feelings; (3) Lose face; (4) Disturb/destroy other children's activities; (5) Become dirty/sticky. • Mandating rules (tell children what they have to do to be included): You must be: (1) Good enough; 	<ul style="list-style-type: none"> • Findings may not be transferable to students in other educational environments, as this study took place in a school system that was nearly fully inclusive

			friendship, identity, school & well- being from peers	n = 120 children; 112 without disabilities; 8 with disabilities (50)		(2) Similar enough; (3) Status congruent. • Rules apply to children with & without disabilities & change with age	
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Table 3. Mixed Methods Studies Included in the Systematic Review

Author, Year/ Country	Purpose	Setting, Age and/or Grade	Data Collection Method	Number (% Female)	Disability	Main Findings	Limitations
Avramidis [78] (2013) (England)	Examine: (1) self-concept of students with special education needs (SEN); (2) sociometric status of students with SEN within social network of their class; (3) social participation of students w SEN in peer groups.	Mainstream primary schools Years 5 & 6	Self-report questionnaire Sociometric technique & indices of participation (e.g., friend nominations) Semi-structured interviews with school professionals	n = 593 101 students with disability (53%), 465 non-SEN students (56%), 27 professionals (teachers of participating classes, teachers from resource units, & SEN coordinators)	Cognitive & learning (82), Behavioural, emotional & social development (13), Physical & sensory needs (6)	<ul style="list-style-type: none"> • Type and severity of SEN did not affect children's self-concept. • Compared to non-SEN peers, students with SEN: (1) Received fewer nominations & had fewer friendships; (2) More likely to hold 'low' sociometric status; (3) Equally likely to be members of a social group • Type of SEN affected no. of nominations received. • Teachers noted non-SEN peers showed empathy, protectiveness & support towards students with SEN. 	<ul style="list-style-type: none"> • Some types of special education needs were not represented in the sample. • Sociometric technique used (e.g., peer nomination) does not provide information regarding strength and quality of relationships.
Calder et al. [79] (2013) (United Kingdom)	Examine the extent and nature of friendships for children with autism from their perspective and from those of their mothers,	Mainstream primary schools 9-11 yrs Grades 5 & 6	Questionnaires Vignettes Observations Semi-structured interviews	n = 279 12 children with a disability (33%), 11 typically developing peers (45%),	Autism	<ul style="list-style-type: none"> • Children with autism rated their best friendships as lower in affective dimensions. • Friendship groups among children with autism varied from 1 to 10 children. 	<ul style="list-style-type: none"> • Small sample limits generalizability.

	teachers, and classroom peers.		Social network nominations	237 classroom peers, 11 parents (100%), 8 teachers		<ul style="list-style-type: none"> • Most children with autism (9/12) engaged in social play with peers. • Themes - children with autism: (1) Their perceived role of friendship; (2) The challenges of friendship. • Themes - parents: (1) Acknowledging differences in friendships; (2) Role of schools in providing support; (3) Parental role in children's friendships. • Themes - teachers: (1) Nature of friendships; (2) Rules & roles within peer interactions; (3) Role of school staff in supporting children's friendships. 	
Chamberlain et al. [80] (2007) (USA)	Explore involvement of children with autism in typical classrooms.	General education classrooms Grade 2-5	Social network nominations Self-report questionnaires Participant observation	n = 398 381 students without autism (53%), 17 students with disability (17.6%)	High - functioning autism or Asperger's syndrome	<ul style="list-style-type: none"> • Compared to matched peer groups, children with autism: (1) More likely to have network connections with girls; (2) Less involved in classroom social structure; (3) Reported spending less time with their best friends in class; (4) 	<ul style="list-style-type: none"> • Majority of participants came from upper middle-class schools. • The fact that only children who had permission from their parents were enrolled in the study (some parents felt the subject of friendships

			Analysis of information paragraphs provided by parents & transcribed conversations with parents regarding results			Experienced less reciprocity of friendship; (5) Received lower peer acceptance scores; (6) Did not report greater loneliness. • Themes: Importance of parent & teacher supports for enhancing children's social integration & peer support.	was too painful) may have tilted results towards the positive.
Dewey and Volkovinskai a [83] (2018) Canada	Examine health-related quality of life (HRQoL) and peer relationships in adolescents with developmental coordination disorder (DCD) & ADHD.	Community (existing cohort study) 11-18yrs	Questionnaire Semi-structured interviews	n = 44 adolescents 28 adolescents with disabilities (28.6%); 16 typically developing peers (62.5%)	DCD (9), ADHD (9), DCD & ADHD (10)	<ul style="list-style-type: none"> • Adolescents with co-occurring DCD & ADHD had lower HRQoL than adolescents with DCD and typically developing peers. • Adolescents with both DCD & ADHD reported higher victimization compared to adolescents with DCD and typically developing peers. • Adolescents with DCD, ADHD, and co-occurring DCD & ADHD did not see themselves as popular and described themselves as "oddballs" or "weird". 	<ul style="list-style-type: none"> • Small sample size of each of the participant groups limits generalizability. • The instrument used to measure peer relationships (The Peer Relations Questionnaire for Children) does not cover all domains of peer relationships but focuses on adolescents' experiences of victimization, bullying & their own prosocial behaviours.

						<ul style="list-style-type: none"> • Interviews of adolescents with co-occurring DCD and ADHD revealed they feel lonely, are left out by peers, and experience marginalization & victimization. 	
Diamond et al. [76] (2008) (USA)	Examine children's understanding of the motor and social competence of children with a physical disability, children's decision to include or exclude a peer with a physical disability, and children's justifications of their inclusion or exclusion decisions.	<p>Inclusive preschool and child care programs</p> <p>3-6 yrs</p> <p>Mean age: 4.4 yrs</p>	<p>Interviews</p> <p>Rating scale to measure social and motor competence</p> <p>Vignettes</p>	n = 46 children with and without disabilities (56%)	Physical disabilities were focus of interview questions, ratings, and vignettes	<ul style="list-style-type: none"> • More likely to choose a typically developing child vs. child with disability. • Girls more likely than boys to choose a child with a disability. • Children gave higher social competence than motor skills ratings to hypothetical child in wheelchair. • Motor skill requirement of activity was a factor in decision for inclusion by peer. • Reasons for choosing typically developing child: (1) Absence of equipment; (2) Use of wheelchair (child is in a wheelchair & cannot do it); (3) Ability to participate in an activity; (4) Disability of hypothetical child in 	<ul style="list-style-type: none"> • Observations of children's interactions with peers were not conducted (hypothetical vignettes were used).

						wheelchair; (5) Sharing & inclusion.	
Diamond and Tu [74] (2009) (USA)	Examine how children's decisions to include a peer with a disability are related to play setting and a child's physical disability.	Inclusive preschool programs 3-5 yrs Mean age: 4.5yrs	Vignette interview Motor skills ratings	n = 68 children with and without disabilities (56%)	Physical disabilities were focus of interview questions, ratings, and vignettes	<ul style="list-style-type: none"> • More likely to choose typically developing doll regardless of play context (e.g., running). • More likely to select doll with disability when disability did not interfere with participation. • Girls more likely than boys to select a child with a disability • Children referred most to ability/ equipment to explain choices • Half changed selection to the doll in the wheelchair when disability did not interfere with participation; 33% chose the doll in the wheelchair when use of wheelchair interfered with participation. • Selecting the doll in the wheelchair positively correlated with explanations that focused on sharing & enjoyment. 	<ul style="list-style-type: none"> • Sample generalizability (sample of children with well-educated parents). • Observations of children's interactions with peers or adults with physical disabilities were conducted. • Do not know: (1) extent to which children's responses to the counter-probes reflected compliance to the probe or a reconsideration of their inclusion decision; and (2) how children's decisions in these hypothetical situations may be related to actual decisions to include or exclude a peer with a disability.

Diamond and Hong [75] (2010) (USA)	Examine effect of contextual factors and individual characteristics on preschool children's inclusion decisions.	Inclusive preschool classrooms 3-5 yrs Mean age: 4.25 yrs	Interview (False-belief tasks and inclusion interview)	n = 72 children with and without disabilities (51%)	Physical disabilities were focus of interview questions	<ul style="list-style-type: none"> • More likely to say that they would choose doll without a physical disability than the doll in the wheelchair across all contexts (e.g., kicking a ball, painting). • More likely to choose peer with disability when: (1) Physical disability interfered minimally with the activity; (2) Had information about the lack of experience of the peer with a disability. • Children with low theory of mind skills less likely to include a child with a disability than children with high theory of mind skills. • Children more likely to use moral justifications related to equity & fairness when they chose the doll in the wheelchair. 	<ul style="list-style-type: none"> • Generalization of results is limited (e.g., actual behavior vs hypothetical situation, to children with types of disabilities other than physical).
Jessup et al. [81] (2017) (Australia)	Explore the high school social experiences of students with visual impairments	High school 13-17 yrs Grades 8-12	Questionnaires Survey completed through an app (completed 7x	n = 12 high-school students with impairments (58%)	Visually impaired (12); Additional disabilities not specified (3)	<ul style="list-style-type: none"> • Students felt included & had a positive sense of belonging. • Reported being lonely ~ 1/3 of the time • Most frequent activities: (1) School 	<ul style="list-style-type: none"> • Small sample limits generalizability. • Few participants had multiple disabilities as is representative of this population of adolescents.

			daily for 1 week) Interviews			work; (2) Talking; (3) Doing nothing & engaging in extra-curricular activities (equal time spent). • Almost half (44%) of all class interactions involved students receiving help.	• Self-selection bias.
Odom et al. [77] (2006) (USA)	Study the social acceptance and rejection of preschool children with disabilities	Inclusive preschool programs 3-5 yrs Mean age: 3.9 yrs	Questionnaires Observations Semi-structured interviews	n = 80 children with a disability (40%)	Speech-language impairment (20), Developmental delay (13), Mental retardation (12), Physical impairment (11), Autism (10), Social-emotional, behavioural, or attention deficit disorder (6), Hearing impairment (2), Visual impairment (3), Health impairment (3)	<ul style="list-style-type: none"> • 28% of children met social acceptance criteria established in study. • 28% were socially rejected by peer group. • 14 themes related to social acceptance grouped into 3 clusters: (1) Awareness & interest in peers & classroom context; (2) Communication skill & pretend play skill; (3) Social abilities/Friendship. • Eight social rejection themes: grouped into two clusters: (1) Social withdrawal-Isolation; (2) Conflict-Aggression. • Children who had disabilities that affected social problem-solving or emotion regulation 	<ul style="list-style-type: none"> • Small sample limits generalizability. • Inter-observer agreement was low.

						more likely to be socially rejected vs. those who did not (e.g., Physical impairment).	
Tsang [82] (2013) (Hong Kong)	Examine and compare attitudes and perceptions of secondary students with and without special education needs towards studying together on the same campus.	Inclusive secondary school	Questionnaire Open-ended questions of same questionnaire	n = 216 secondary school students 130 students without SEN; 86 students with SEN	SEN	<ul style="list-style-type: none"> • For students with and without disabilities, inclusion of peers with physical disabilities is more accepted than inclusion of disruptive or aggressive peers. • Both groups perceive that studying together in the same classroom has: (1) A positive impact on promoting students' social relationships between the two groups; (2) A negative impact on progress of learning performance. • Four themes: (1) Lack of social interactive initiatives; (2) Lack of mutual understanding; (3) Lack of social participation opportunities; (4) Lack of social coping skills in bullying situations. 	<ul style="list-style-type: none"> • Unrepresentative sample.

Table 4. Social inclusion strategies used and suggested by peers

<i>Peer strategies used</i>	<i>Study</i>
Taking initiative (e.g., saying hello, lending a hand)	Tsang [82]
Being persistent in interactions & following the lead of children with disability	Parry [62]
Being supportive: <ul style="list-style-type: none"> • Helping the child (e.g., read to child, “walk” child to playground, help child to play sports, games, or participate in social interactions) • Providing encouragement • Giving advice 	Naraian [60]; Nowicki & Brown [72]; Anderson et al. [70]
Making sure child is still included if unable to participate: <ul style="list-style-type: none"> • Including the child in parts of the activity • Assigning the child alternative role (e.g., cheerleader) 	Anderson et al. [70]
Choosing an easy activity/game Modifying the activity/game (e.g., rules) Adjusting own behavior or task so activity can be completed (e.g., take most advanced task) Adjusting everyone’s tasks so child gets task he/she can do	Dolva et al. [51]; Seymour et al. [68]
Asking the teacher for help when communicating with a child with disability	Anderson et al. [70]
Adjusting to child’s pace when walking with a child with disability	Asbjornslett et al. [46]
Sharing small-talk about mutual interests	Asbjornslett et al. [46]
Engaging in collaborative activities that facilitate spending time together/interaction	Morrison & Burgman [58]; Tsang [82]
<i>Peer strategies suggested</i>	
Learning and sharing information about disabilities	
Taking the role of a peer tutor (e.g., take book & pronounce words slowly, daily reading/practice of math skills) <ul style="list-style-type: none"> • Breaking down tasks/teaching into steps and in a way child will understand • Give them more time to do their work and/or learn 	Nowicki & Brown [72]; Shokoohi-Yekta & Hendrickson [45]
Approaching child with disability in a “kid way” (teachers do it in a “grown-up way”)	Nowicki & Brown [72]
Focusing on similarities, not differences	Nowicki & Brown [72]
Modeling appropriate social behaviour (e.g., being respectful, kind)	Nowicki & Brown [72]
Intervening in non-appropriate social behaviours (e.g., aggression/bullying)	Nowicki & Brown [72]
Engaging in collaborative activities (e.g., group work, inclusion in intramurals or school clubs)	Nowicki & Brown [72]; Kalyon et al. [71]; Shokoohi-Yekta & Hendrickson [45]
<i>Teacher strategies suggested</i>	
Intervening to facilitate inclusion (e.g., bring child with disability to the group, pick groups)	Nowicki & Brown [72]

Providing instructional assistance to facilitate inclusion (e.g., read as a class or group, ensure child has an educational assistance)	Nowicki & Brown [72]
Educating children about disabilities	Nowicki & Brown [72]

Table 5. Barriers and supports to social inclusion reported by children with disabilities

<i>Barriers</i>	<i>Study</i>
<i>Disability-related</i>	
Assistive technology when viewed as intimidating	Batorowicz et al. [47]
<i>Classroom supports</i>	
Teacher assistance (e.g., cannot chat with peers) Class routines (e.g., changing seating position to accommodate needs) Practices of schooling (e.g., grading & academic-ability grouping) and differentiation strategies (e.g., support assistants, withdrawing child from class for being disruptive)	De Boer et al. [39] Kamenopoulou [54] MacArthur et al. [56]; McMaugh [57]; Morrison & Burgman [58]
<i>Social Supports</i>	
Support from an adult preventing interaction with students/participation	Mortier et al. [66]
Dependence on parental involvement in best friendships (e.g., for transportation)	Seymour et al. [68]; McMaugh [57]
<i>Supports</i>	<i>Study</i>
<i>Classroom supports</i>	
Studying together in same classroom	Tsang [82]
Having a friendly and positive teacher	Morrison & Burgman [58]; O'Rourke & Houghton [43]
Having support people in the classroom	De Schauwer et al. [50]; Jessup et al. [81]; O'Rourke & Houghton [43]
Instructional strategies (e.g., clear and effective teaching, making the subject interesting, working with peers on projects)	
<i>Social Supports</i>	
Influence of adults and peers on opportunities to participate	Spencer-Cavaliere & Watkinson [63]; Asbjornslett et al. [46]; Batorowicz et al. [47]; Howard et al. [53]; Naraian [60]; Spencer-Cavaliere & Watkinson [63]; De Schauwer et al. [50]; Jessup et al. [81]; Seymour et al. [68]; Spratling et al. [64]; Dolva et al. [51]
Parental Involvement: <ul style="list-style-type: none"> • facilitate social contact (e.g., invite peers over) • offer advice on how to interact with others • arrange play dates and facilitate access to structured activities • seek families in similar situations & encourage friendship development 	
Classmates as source of support (e.g., physical assistance, help with homework)	
Friends as source of companionship, instrumental (e.g., help with homework), and emotional (e.g., relationship advice) support	Dolva et al. [51] Batorowicz et al. [47]; Spratling et al. [64]; Asbjornslett et al. [46]
Activities that are structured, simple, or well-known to participants	
Shared understanding of the activity, ability to perform the activity, interest, and motivation	
Educating others about disabilities and familiarity	
Internet and cell phones to maintaining intimacy in relationships	

Table 6. Strategies used by children with disabilities to facilitate social inclusion

<i>Strategies</i>	<i>Study</i>
Keeping activities as normal as possible	Mortier et al. [66]
Expressing needs/preferences	MacArthur et al. [56]; Mortier et al. [66]
Emphasizing similarities with peers rather than differences	De Schauwer et al. [50]; MacArthur et al. [56]
Hiding or ‘masking’ their disability	Cook et al. [48]; Murphy et al. [59]; Sumiya et al. [65]
Avoiding the use of equipment that may make them appear different	Asbjornslett et al. [46]; MacArthur et al. [56]
Educating others about disabilities	Spratling et al. [64]
Resisting disabling experiences: <ul style="list-style-type: none"> • Challenging low expectations, attitudes, behaviors, structures & experiences that discriminate against them • Defending themselves (e.g., digging nails into peers, using profanities) • Negotiating • Using humour 	MacArthur et al. [56]; McMaugh [57]
Attempt to play/interact with other children <ul style="list-style-type: none"> • Requesting to play with peer • Inquiring about potential shared interests • Engaging in pretend play to facilitate connecting with peers • Taking the lead, controlling exchanges & engaging playmates using various strategies (e.g., putting toy on child’s head, copying vocal sound of peer to get their attention) • Copying peers’ actions • Choosing to stand/sit next to peers • Moving/dropping/bringing toys towards peers • Disrupting games • Visiting areas where peers congregate (e.g., snack area, play locations) & initiating interaction • Putting themselves in the center of a group of children playing together • Taking away toys from peers & initiating a chase • Approaching children who are new 	Kayama & Haight [55]; Parry [62]; Parry [67]; Dolva et al. [51]

Figure 1. Information Flow through the Different Phases of the Systematic Review