

Children with disability in inclusive early childhood education and care

Centre for Education Statistics and Evaluation



Context: young children with disability in NSW community preschools

In inclusive early childhood education and care services, children with and without disability learn and play alongside one another¹. The provision of inclusive services is widely supported on human rights grounds² and on the basis that all children should have access to high-quality preschool programs³.

Many preschools in New South Wales could be classified as inclusive: in 2013, there were approximately 4,400 children with disability in New South Wales' 765 community preschools⁴, and around 9 per cent of children in community preschools had a disability or other additional need. For two-thirds of New South Wales preschools, children with disability make up less than 10 per cent of enrolments. However, for a small proportion (7 per cent) of preschools, children with disability make up more than 25 per cent of enrolments. Furthermore, about 85 per cent of community preschool educators work with a child with disability⁵.

Young children with disability can currently access specialised support through a variety of avenues. In New South Wales, funding and support from the Department of Education and Communities is available through the Intervention Support Program (ISP) and Supporting Children with Additional Needs (SCAN) programs. Depending on the disability, families are also likely to access a range of other services outside of the preschool, either in addition to or separate from preschool⁶.

The range of disabilities experienced by these children is significant. Of the children funded by the ISP, 37 per cent had an autism spectrum disorder; 23 per cent had a developmental delay or disorder and 14 per cent had a severe language disorder. There were also smaller numbers of children with other disabilities such as Down syndrome (4 per cent), hearing impairments (4 per cent) and cerebral palsy (3 per cent). The ISP requires diagnosis from a specialist (such as a paediatrician or speech pathologist)⁷ and may not capture the full range of disabilities experienced by children in preschools.

The number and diversity of children with disability attending inclusive NSW preschools means that it is important both to look at the experiences of these children; and to provide some examples of best practice that educators and teachers can use to support the engagement and development of children with disability.

Purpose

The Review of NSW Government Funding for Early Childhood Education, undertaken by Professor Deborah Brennan, recommended a review of the Department of Education and Communities' funding arrangements for preschool-age children with a disability or an additional need. This literature review has been undertaken to inform the review.

This paper seeks to examine the evidence in the literature of the benefits for children with disability in inclusive childcare settings. Attention is then turned towards research on strategies to inform best practice for inclusive early childhood education.

This paper finds that, while every child's experience will be different, overall:

- participation in inclusive settings is beneficial for many children with disability
- for some children with disability, inclusive early childhood education and care will be just one type of useful early intervention to assist their development
- engagement is a key measure of the benefit children with disability receive from early childhood education and care services
- there are some strategies that inclusive preschools can use to ensure that children with disability are reaching their full potential.

1 S Odom and K Diamond 1998, 'Inclusion of young children with special needs in early childhood education: The research base', *Early Childhood Research Quarterly*, vol.13, no.1, p.6.

2 See, for instance, Article 24 of the Convention on the Rights of Persons with Disabilities.

3 Odom and Diamond, p.6.

4 Community preschools are non-government and not-for-profit.

5 Analysis by the Centre for Education Statistics and Evaluation, based on 2013 NSW Preschools census (unpublished).

6 Examples of early childhood intervention services include: Aspect (Autism Spectrum Australia, <http://www.autismspectrum.org.au/>) and the Royal Institute for Deaf and Blind Children (<http://www.ridbc.org.au/>).

7 Intervention Support Program 2014, *Program Guidelines*, NSW Department of Education and Communities, viewed 22 July 2014, <https://www.det.nsw.edu.au/eas/isp/guide14.pdf>.

There are methodological limitations in studies involving young children with disability

The wide range of experiences of disability, as well as the diversity of early childhood education and care services, make it difficult to draw broad conclusions about the early education and care of children with disability.

For instance, services may vary by the length of day; size of the group; the educational program being delivered; and the number and qualifications of their staff. In addition, many types of disability occur across a spectrum or continuum, and some children experience multiple forms of disability to different levels of severity. For example, there is no such thing as a 'universal' experience of Down syndrome or autism spectrum disorder. This means there can be wide variance in levels of functioning and additional needs of individual children even within the same type of diagnosed disability, resulting in very small comparative sample sizes in evaluations of programs. Further challenges include:

- typically small sample sizes across studies (which make it hard to detect effects even if they occur)
- the exclusion of children with severe disabilities⁸
- insufficient detail on the nature of participants' disabilities⁹
- the use of multiple interventions or services in addition to preschool (which can reduce the ability of researchers to isolate the effects of any one program used)¹⁰
- the location of studies: studies typically do not take place in regular preschool environments (instead taking place in university-based preschools manipulated by researchers)¹¹
- many of the studies in this area were published in the 1980s and 1990s, and may not reflect current practice in early childhood education and care.

Finally, there are ethical difficulties in establishing truly randomised trials to evaluate programs – and this has meant that few meet the accepted 'gold standard' of evaluation¹². There have been few studies which utilised experimental designs, however most examine co-occurring relationships¹³. A particular need for research that informs the design and implementation of specific early intervention programs has been identified¹⁴.

The benefits of early childhood education and care programs for most children, including disadvantaged children, are widely understood

There is extensive evidence demonstrating that all children, especially children from disadvantaged backgrounds, benefit from accessing quality early childhood education programs before starting school. It is in light of this evidence that all Australian governments agreed in 2008 and 2009 to ensure universal access to preschool for children in their year before school, as well as agreeing to implement a national early years learning framework, national quality standards and nationally consistent laws for regulated early childhood education and care services. The 2014 draft report of the Productivity Commission on childcare and early childhood learning noted that the benefits of quality early learning for children in the year prior to starting school are largely undisputed¹⁵.

8 J Hundert et al. 1998, 'A descriptive analysis of developmental and social gains of children with severe disabilities in segregated and inclusive preschools in Southern Ontario', *Early Childhood Research* Vol.13, No.1, p.51.

9 C Driscoll and M Carter 2009, 'The effects of social and isolate toys on the social interaction of preschool children with disabilities' *Journal of Developmental and Physical Disabilities* vol.21 no.4, pp.279-300.

10 Ageing, Disability and Home Care (ADHC: NSW Department of Family and Community Services) 2013, *Evaluation of four autism early childhood intervention programs: Final evaluation report - Executive summary*, viewed 6 March 2014, http://www.adhc.nsw.gov.au/about_us/research/completed_research#sthash.D3BQXPJe.dpuf.

11 Hundert et al., p.51.

12 Victorian Government Department of Education and Early Childhood Development (DEECD) 2010, *Early childhood intervention reform project: revised literature review* pp.84-85.

13 S Odom and D Bailey 2001, 'Inclusive preschool programs: Classroom ecology and child outcomes' in M Guralnick (ed.) *Early childhood inclusion: Focus on change*, Paul H. Brookes, Baltimore, p.265.

14 M Guralnick 1997, 'Second generation research in the field of early intervention' in M Guralnick (ed.) *The effectiveness of early intervention*, Paul H. Brookes, Baltimore, pp. 3-23.

15 Australian Government Productivity Commission 2014, *Childcare and early childhood learning*, Draft Report, Canberra.

Studies have shown that both quantity and quality of access can be important to improving children's developmental and educational outcomes, particularly where children have, or are at risk of having, developmental delay because of their disadvantaged backgrounds. For example, a longitudinal study from the United Kingdom, known as the Effective Provision of Pre-School Education (EPPE) project, has tracked around 3,000 children from the age of three through to sixteen years, seeking to assess the impact of access (including play sessions, long day care settings, and preschools) on participants' longer-term educational outcomes. This study has found that the more months a child spends in quality services, the better their language-related skills will be, and that an early start (when aged two or three years) is linked with better intellectual attainment at school entry. EPPE researchers found that two or more years in a high quality preschool environment had the biggest statistical impact on early literacy skills¹⁶.

However, it is important not to conflate developmental delay or disadvantage with disability. The benefits of preschool identified by EPPE will not necessarily hold true, or perhaps not to the same extent, for children with disability accessing the same kinds of early childhood education programs.

Inclusive early childhood education is just one early intervention that children with disability should have access to

Early intervention strategies can target improvements in any of a number of areas, such as motor skills, cognitive skills, speech and language, working memory, reading and writing, number skills, social development and behaviour – all of which are important to helping young children be as developmentally prepared as possible to participate in early childhood education and schooling.

Depending on a child's age and needs, interventions may include accessing a range of professionals such as special educators, speech therapists, behavioural therapists, occupational therapists, and/or providing education and other support services for parents and carers. Early intervention can take place at a child's home, in a specialist centre, or in mainstream early childhood settings. In Australia, early intervention tends to be used to describe programs targeted at young children (0-5 years) with developmental delay caused by specific disabilities or medical conditions.

Inclusive preschool programs are an early childhood intervention aimed at ensuring that all young children are provided with the experiences and opportunities necessary to promote and stimulate their development in their 'natural' learning environment.

While this paper addresses the benefits of inclusive preschool programs for children with disability, it is important to understand there are a range of other interventions that children may access, in addition to preschool. These additional interventions can be crucial for children with disability, and inclusive preschool can be seen in this context as forming one part of a child's development.

One key question is how the benefits of different forms of education and care for very young children should be measured

In primary and secondary schools, researchers often compare how children (and schools) are faring by looking at academic performance (in New South Wales, for instance, NAPLAN and Higher School Certificate scores are used). There is less clarity around how to measure the impact that different forms of education and care have on very young children. However, researchers have constructed a range of measures that aim to assess children's engagement (with peers and adults, within activities, and the child's initiation of engagement) or other cognitive and language-focused skills¹⁷.

16 K Sylva et al. 2004, *The Effective Provision of Pre-School Education (EPPE) Project: Technical Paper 12 - The Final Report: Effective Pre-School Education*, London: DfES / Institute of Education, University of London.

17 See, for example, Y Kishida and C Kemp 2009, 'The engagement and interaction of children with Autism Spectrum Disorder in segregated and inclusive early childhood center-based settings', *Topics in Early Childhood Education*, vol.29, p.106 [engagement and interaction]; K Cole et al. 1991, 'Effects of preschool integration for children with disabilities', *Exceptional Children*, vol.58, no.1, pp.36-45 [range of measures testing children's verbal, perceptual, quantitative, memory, motor, and general cognition as well as early language development and early reading ability].

The majority of the literature in this field focuses on engagement as a key measure, both because engagement is understood to be a prerequisite of learning¹⁸; and because researchers have also found that children with disability demonstrate lower levels and shorter periods of engagement than children without disability¹⁹. Kishida and Kemp define engagement as, 'situationally appropriate interactions with the physical environment, materials, or other persons'²⁰.

While there is some variance on measurements depending on the purpose of the research, engagement has largely been measured by researchers recording observational data. An illustrative example is a study which looked at the engagement levels of children with disability in inclusive early education across different types of activities²¹. The study entailed training observers how to code different behaviours, including whether the child was engaged, who with, whether they were prompted and what kind or degree of engagement was exhibited. The observers coded the behaviours of each child at the end of every fifteen second block for ten minutes. Concerns about reliability and validity can be minimised by measuring multiple dimensions of engagement, across multiple observation sessions and by testing interobserver agreement (comparing the results of two separate observers coding behaviour at the same time). This example is broadly representative of the ways engagement is measured.

On balance, the evidence indicates that most children with disability will benefit from inclusive early childhood education and care

One study found that children with different kinds of disabilities in inclusive settings increased their number of positive interactions (such as positive verbal behaviour, physical contact or sharing) over the course of a year to a greater extent than they did in segregated settings²². The authors suggested that the availability in inclusive settings of children without disability as role models may have allowed children with disability in these settings to develop more sophisticated play behaviour²³.

This was confirmed by a 2012 study which found a consistent pattern of improved cognitive outcomes for children with autism spectrum disorders who had attended inclusive preschools, when they were tested at entry into school. Nahmias et al found that this pattern was particularly strong for children with autism spectrum disorder who initially had greater social and adaptive behaviour impairments and at least a baseline level of language skills²⁴. The authors suggested that inclusive preschools are particularly beneficial for children with autism spectrum disorder, as they provide opportunities to interact with children without disability and build important social skills.

Odom and Bailey found that, across studies of children with different disabilities, children with disability tend to engage more with their peers in inclusive settings, and this participation has positive effects on their social play and behaviour²⁵.

However, the benefits of inclusive preschool programs for children with disability are not as clear as the benefits of preschool for children without disability. For instance, some studies seeking to discover the impact of segregated and inclusive early childhood education services on children with disability have identified no difference, or no significant difference, between integrated and segregated settings²⁶. Other studies have found children receive different benefits in segregated and inclusive settings. One (very

18 R McWilliam and D Bailey 1992, 'Promoting engagement and mastery', in D Bailey and M Wolery (eds), *Teaching infants and preschoolers with disabilities* (2nd ed.), Merrill, New York, pp.230-255; see also W Brown et al. 2001, 'An intervention hierarchy for promoting preschool children's peer interactions in naturalistic environments', *Topics in Early Childhood Special Education*, vol.21, p.162.

19 R de Kruif and R McWilliam 1999, 'Multivariate relationships among developmental age, global engagement, and observed child engagement', *Early Childhood Research Quarterly*, vol.14, pp.515-536; S Kontos et al. 1998, 'The ecology of inclusion', *Topics in Early Childhood Special Education*, vol.18, pp.38-48; R McWilliam and D Bailey 1995, 'Effects of classroom social structure and disability on engagement', *Topics in Early Childhood Special Education*, vol.15, pp.123-147.

20 C Kemp et al. 2013, 'The effect of activity type on the engagement and interaction of young children with disabilities in inclusive childcare settings', *Early Childhood Research Quarterly*, vol. 28, p.135, also citing D Bailey and M Wolery 1992, 'Goals of early intervention' in D Bailey and M Wolery (eds) *Teaching infants and pre-schoolers with disabilities*, 2nd ed, Merrill, New York, pp.33-62.

21 Kemp et al. 2013.

22 P Beckman and F Kohl 1987, 'Interactions of preschoolers with and without handicaps in integrated and segregated settings: A longitudinal study', *Mental Retardation*, vol.25, no.1, p.8. This study tested the behaviour of the same group of children across different settings.

23 Beckman and Kohl, p.10.

24 A Nahmias et al. 2012, 'Comparing cognitive outcomes among children with autism spectrum disorders receiving community-based early intervention in one of three placements', *Autism*, vol.18, pp.311-320.

25 Odom and Bailey 2001, p.263.

26 Kishida and Kemp 2009 p.106, citing: J Sontag 1997, 'Contextual factors influencing the sociability of preschool children in integrated and segregated classrooms', *Exceptional Children*, vol.63, pp.389-405: no difference regarding sociability; Harris et al. 1990, 'Changes in language development among autistic and peer children in segregated and integrated preschool settings', *Journal of Autism and Developmental Disorders*, vol.20, pp.23-31: no difference in language gains for children with autism spectrum disorder.

small scale) Australian study found that although children with autism spectrum disorder tended to spend more time engaged overall in segregated settings, they spent more time interacting with their peers in inclusive settings²⁷.

The mixed nature of these findings may be due to a large range of methodological issues affecting studies in this particular area. It may also indicate that while many children with disability can flourish and develop a range of skills in inclusive settings, they may also need to access other services to reach their full potential. On balance, the literature tends to support inclusive childcare for children with disability²⁸.

Children without disability also benefit from participation in inclusive early childhood education and care

While research on the impacts of inclusive preschool for children without disability is not extensive, there are no indications of any negative effects for their cognitive or social development²⁹. There is evidence that the acceptance and understanding of disability is increased by participation of children without disability in inclusive preschools. One study found that children without disability in inclusive preschools gave significantly higher social acceptance ratings to children with disability and had more knowledge about the long-term nature of disability than children in segregated preschools³⁰. Another study found higher frequency of social interactions for both children with and without disability in inclusive preschools³¹.

The evidence on the benefit of inclusive preschool for children with more serious disabilities is not as strong

One 1991 study, by Hundert and colleagues, found that children with both severe and mild to moderate disabilities fared better in inclusive settings than in segregated settings, across multiple measures (including measures that incorporated teacher and parent views). However, the study's authors acknowledged the potential for selection bias in their design: although they attempted to match students with comparable disability in segregated settings to children in inclusive settings, they found it difficult to find children in inclusive settings whose disability was as significant as those of the children in the segregated settings³².

In a separate study, researchers found no difference between inclusive and segregated settings, until the data was broken down by children's prior ability. Cole and colleagues studied children with different kinds of disabilities to assess the impact that inclusive and segregated learning had across a range of formal measures, including their early verbal and reading ability. Children who had higher levels of prior ability gained more from inclusive classes, whereas children who had lower levels of prior ability gained more from segregated classes. Although these findings were classified as 'statistically significant', they were not considered to be very different in real terms³³.

27 Kishida and Kemp 2009, pp.112, 114.

28 See, for example: Kishida and Kemp 2009; Odom 2011; M Guralnick (ed.) 2001 *Early childhood inclusion: Focus on change*, Paul H. Brookes, Baltimore.

29 M Guralnick 2001, 'A framework for change in early childhood inclusion', in M Guralnick (Ed.) *Early childhood inclusion: Focus on change*, Paul H. Brookes, Baltimore, p.28.

30 K Diamond et al. 1997, 'Relationships Between Enrolment in an Inclusive Class and Preschool Children's Ideas about People with Disabilities', *Topics in Early Childhood Special Education*, vol.17, pp. 520-536.

31 M Guralnick et al. 1996, 'Immediate Effects of Mainstreamed Settings on the Social Interactions and Social Integration of Preschool Children', *American Journal on Mental Retardation*, vol. 100, no.4, pp. 359-377.

32 Hundert et al., pp.60-61.

33 Cole et al., p.42.

Within inclusive settings, there is some evidence suggesting that certain approaches or strategies are more likely to engage children with disability

US guidelines for inclusive early childhood services (and indeed, common sense) suggest that it is not sufficient to simply place children with disability in inclusive preschool settings, without efforts to ensure that these children have the same access to learning opportunities as other children³⁴. The research indicates that some strategies may be more effective at unlocking the potential benefits for children with disability in inclusive childcare and education.

Free play time

Three broad activity types most common in Australian early childhood settings are:

1. free play (indoor and outdoor play sessions)
2. meal-routine (lunch and morning tea)
3. group activities (story, gross motor, music or language-related sessions)³⁵.

One key Australian study found that children with disability were more actively engaged during both free play and meal-routine activities compared with group activities³⁶; and that the majority of interactions with peers take place during free play, when play is 'child-directed'.

Given the nature of group activities (where the teacher generally does much of the talking and the children are expected to sit and listen or to follow instructions given to the group) and the difficulties in communication commonly experienced by children with disability, it is not surprising that engagement was more passive in group activities³⁷.

While these findings suggest that children with disability may benefit most from child-directed activities (usually during free play), other studies show this may not be the case for all children with disability. Children with autism spectrum disorder have been found to be less engaged and to interact less with others during free play than other children with non-autism spectrum disorder disabilities³⁸. This is due to the recognised difficulties that children with autism spectrum disorder have with social interaction³⁹, which can be improved by adopting strategies to promote peer interaction, as discussed in the following section.

Child-adult interactions

One key feature of early childhood programs is the degree to which program activities are adult or child initiated⁴⁰. Activity initiation reflects the extent to which activities are controlled by adults or children⁴¹. While engagement with adults is important for social and cognitive development, young children's successful peer interactions are important building-blocks for the development of social, language and cognitive competencies⁴² (as noted above). A widely accepted conclusion of work on inclusive early childhood settings is that social integration of children with disability should be a goal of inclusion⁴³. Additionally,

34 DEC/NAEYC 2009, *Early childhood inclusion: A joint position statement of the Division of Early Childhood (DEC) and the National Association for the Education of Young Children (NAEYC)*, The University of North Carolina, FPG Child Development Institute, Chapel Hill, North Carolina.

35 Kemp et al., p.136.

36 Kemp et al., p.138.

37 Kemp et al., p.139.

38 Kemp et al., p.138.

39 Kishida and Kemp, p.115.

40 Odom and Bailey, pp.253-276.

41 L Tsao, et al. 2008 'Social participation of children with disabilities in inclusive preschool programs: Program typology and ecological features', *Exceptionality*, vol.16, p.134.

42 Brown et al., p.162.

43 M Guralnick 1980, 'Social interaction among preschool handicapped children', *Exceptional Children*, vol.46, pp.248-253; cited in S Odom 2002, 'Narrowing the question: Social integration and characteristics of children with disabilities in inclusion settings', *Early Childhood Research Quarterly*, vol.17 no.2 pp.167-170.

in inclusive classrooms, where child-adult ratios are lower than in segregated classes, intensive interventions are less likely to be possible, which further emphasises the importance of strategies to promote peer interactions.

Adult involvement is one factor that has been shown to reduce the amount of interaction with peers by children with disability⁴⁴. In a study that confirmed and built on the existing research, children initiated far fewer interactions with a peer than would be expected by chance, immediately following a one-on-one interaction with an adult⁴⁵. Furthermore, after adult-initiated interactions with a child, the child was far more likely to initiate further interactions with adults.

One practical lesson from this research is that if educators are looking to increase peer interaction, they should encourage child-initiated activities⁴⁶. When adults interact with children with disability in inclusive settings, they should strategically choose how they intervene in order to promote social interaction with peers. Examples of positive adult interventions include giving prompts⁴⁷, encouraging onlookers to join play, only responding to children's requests and redirecting social initiations from children towards peers. Adults talking to or engaging in play may direct children with disability's attention away from peers and does not facilitate increased peer interactions⁴⁸.

While the research suggests that adults should reduce their interactions to promote peer interaction, this may not hold true for all children, especially those with autism spectrum disorder. Children with autism spectrum disorder interact much less with peers and adults than children with other disabilities⁴⁹. One study also looked at the conditions surrounding the interactions initiated by adults, and found that adults initiated interactions with children far more frequently than by chance when children were alone, and less frequently when they were interacting with a peer⁵⁰. This is relevant for children with autism spectrum disorder, who may require a greater level of adult prompting than other children with disability to encourage interaction with peers.

The same study indicated that when peers initiated an interaction with a child with disability in inclusive preschools, the child was more likely to then initiate interactions with their peers⁵¹. This lends support to interventions which aim to increase social skills through peer interactions. Peer-mediated interventions employ the assistance of children without disability to help children with disability develop important skills⁵². It may involve teaching peers to prompt or initiate interactions, how to respond to children with disability in an appropriate way or how to reinforce positive behaviours⁵³. These strategies have been effective for children across a range of disabilities, including those with moderate to severe disabilities⁵⁴. A systematic review of the literature on the efficacy of peer-mediated interventions for children with autism concluded that peer-mediated interventions are a versatile and effective approach⁵⁵.

Peer-mediated interventions have also been effective for students with social communication disorders, who may need more structured, explicit and intensive interventions to develop their interactions with peers⁵⁶. However, there are barriers to implementation, including the need to train teachers and peers to deliver the program⁵⁷, the potential for peer instructors to miss out on developing their own skills and the possible need to reconsider the classroom routine schedule to accommodate peer-mediated interventions⁵⁸.

44 For a summary of the existing literature on the relationship between adult-child interactions, see L Harper and K McCluskey 2003, 'Teacher-child and child-child interactions in inclusive preschool settings: Do adults inhibit peer interactions?' *Early Childhood Research Quarterly*, vol. 18, pp.163-166.

45 Harper and McCluskey, p.173.

46 Tsao et al., p.138.

47 Sontag pp.389-405, found that adult prompting resulted in higher subsequent peer interactions.

48 Odom and Bailey, p.264.

49 Kemp et al., p.140.

50 Harper and McCluskey, p.175.

51 Harper and McCluskey, p.178.

52 S Odom and P Strain 1984, 'Peer-mediated approaches to promoting children's social interaction: A review', *American Journal of Orthopsychiatry*, vol.54, pp.544-557.

53 Odom and Strain, pp.544-547.

54 C Yang and E Rusli 2012, 'Teacher training in using effective strategies for preschool children with disabilities in inclusive classrooms', *Journal of College Teaching & Learning*, vol.9, no.1, p.55.

55 J Chan et al., 2009, 'Use of peer-mediated interventions in the treatment of autism spectrum disorders: A systematic review', *Research in Autism Spectrum Disorders*, vol.3, pp.876-889.

56 T Stanton-Chapman et al., 2012, 'Communication skill building in young children with and without disabilities in a preschool classroom', *Journal of Special Education*, vol.46, pp.78-93.

57 More detail in Yang et al., p.56.

58 Chan et al., p.877.

Toys

Studies suggest that the availability and type of toys in inclusive early childhood settings can impact on social interaction between children. Researchers distinguish between social toys (e.g. dress-up props, dollhouses, house materials, puppets, vehicles) and isolate toys (e.g. small puzzles, crayons, paints, books)⁵⁹.

Researchers have found that social interaction among children in inclusive settings is more frequent when social toys are made available⁶⁰. In one study, children with disability were taught to use toys that children without disability had shown a preference for, resulting in increased social interactions between children with and without disabilities⁶¹. A later study supported these findings, reporting that social toys were much more likely to encourage cooperative play than isolate toys, as well as increasing interactions overall⁶². In contrast, the presence of isolate toys made 'parallel' play the dominant interaction (where children play with similar toys to others without attempting to influence other children's play).

There are, however, some methodological concerns about the body of literature in this field⁶³, as described earlier in this paper. More recent studies have attempted to overcome some of these concerns through more robust experimental design⁶⁴. These studies gave much more limited support to the ability of social toys to increase the frequency and level of social interaction, with some children demonstrating clear patterns of higher interactions and others displaying no discernable influence. This may be due to differences in the disabilities of the children and one study only including two children with disability.

Play structure

The highest level of social play is described as cooperative play⁶⁵, which involves a give-and-take interaction between children on the same play theme. Social interaction is increased in inclusive settings when the types of play activities are highly structured (for example, role-playing as doctor, shoe store), as opposed to activities with a low degree of structure (painting, water table)⁶⁶. High structure activities define roles for children that require cooperation, and working towards a shared goal. Research on children with and without disability shows that social interaction between children increases in activities that require cooperative play⁶⁷.

59 For a summary of toy typology and supporting references, see C Driscoll and M Carter 2009, 'The effects of social and isolate toys on the social interaction of preschool children with disabilities' *Journal of Developmental and Physical Disabilities* vol.21, no.4, p.285.

60 P Beckman and F Kohl 1984, 'The effects of social and isolate toys on the interactions and play of integrated and nonintegrated groups of preschoolers', *Education and Training of the Mentally Retarded*, vol.19, pp.169-174; S Martin et al. 1991, 'Effects of toys on the social behavior of preschool children in integrated and nonintegrated groups: Investigation of a setting event', *Journal of Early Intervention*, vol.15, pp.153-161; M Rettig et al. 1993, 'The effect of social and isolate toys on the social interactions of preschool-aged children', *Education and Training in Mental Retardation*, vol.28, pp.252-256; J Ivory and J McCollom, 1999, 'Effects of social and isolate toys on social play in inclusive settings', *Journal of Special Education*, vol.32, no.4, pp. 238-243.

61 F Kohl et al. 1984, 'The effects of directed play on functional toy use and interactions of handicapped preschoolers', *Journal of the Division for Early Childhood*, vol.8 pp.114-118, cited in Odom and Bailey, p.259.

62 J Ivory and J McCollom, pp. 241-242.

63 Driscoll and Carter, p.280.

64 Driscoll and Carter, pp.279-300; C O'Gorman Hughes and M Carter, 2002, 'Toys and materials as setting events for the social interaction of preschool children with special needs', *Educational Psychology*, vol.22, pp.429-444.

65 M Parten, 1932, 'Social participation among pre-school children', *Journal of Abnormal and Social Psychology*, vol.27, pp. 243-269.

66 M DeKlyen and S Odom 1989, 'Activity structure and social interactions with peers in developmentally integrated play groups', *Journal of Early Intervention*, vol.13, pp.342-352.

67 Z Stoneman et al. 1983, 'The association between play materials and social behavior in a mainstreamed preschool: A naturalistic investigation', *Journal of Applied Developmental Psychology*, vol.4, pp.163-174.

Conclusion

Inclusive preschools are a common feature of the New South Wales early childhood education and care landscape. As a whole, the evidence supports inclusive preschools for children with disability, finding that they tend to increase children's engagement — a key measure of success. The evidence also tends to support the use of certain toys and strategies to increase engagement, for instance, encouraging children to initiate play with each other.

However, research in this area is particularly prone to methodological challenges, making it difficult to draw broad conclusions about the benefits of inclusive childcare or strategies used by educators working in this area, with any certainty. Furthermore, it is important to recall that every child's needs will be different, and that children with different kinds of disabilities may benefit more or less from inclusive preschool and other forms of intervention or support.

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