

## The Impact of Peer-mediated Intervention on Children with Special Needs in Inclusion Classroom

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### *Abstract*

*Systematic review aims to analyze the impact of interventions that mediated by peers on children with special needs in an inclusion setting. The review was conducted with the search keywords "peers" and "inclusive class", "peers" and "inclusion settings", "peers" and "inclusive settings", "peers" and "inclusive classrooms" in 2 online databases, namely ERIC and ScienceDirect. There were 11 articles reviewed from the total number of initial searches of 1,233 obtained from screening results according to inclusion and exclusion criteria. The results show that all interventions that have been implemented involve the role of peers. The focus of interventions various kinds, ranging from children aged 3-16 years and more focus on children with Autism Spectrum Disorder (ASD). Eleven Interventions that involve peers are significantly able to improve interaction, communication, social skills and social initiation in children with special needs so that it can be a reference in the process of intervention in the further application or research.*

**Keywords:** *intervention; peers; special needs; inclusive*

### **Abstrak**

Sistematik review bertujuan untuk menganalisis dampak intervensi yang dimediasi oleh teman sebaya pada anak berkebutuhan khusus di setting inklusi. Review dilakukan dengan kata kunci pencarian "peers" and "inclusive class", "peers" and "inclusion setting", "peers" and "inclusive setting", dan "peers" and "inclusive classroom" pada 2 database online, yakni ERIC dan ScienceDirect. Terdapat 11 artikel yang direview dari jumlah total pencarian awal 1.233 yang diperoleh dari hasil screening sesuai dengan kriteria inklusi dan eksklusi. Hasil menunjukkan bahwa seluruh intervensi yang telah diterapkan melibatkan peran teman sebaya. Fokus intervensi beraneka ragam, mulai dari anak berusia 3-16 tahun dan lebih banyak fokus pada anak dengan *Autism Spectrum Disorder* (ASD). Sebelas Intervensi yang melibatkan teman sebaya tersebut secara signifikan mampu meningkatkan interaksi, komunikasi, keterampilan sosial dan inisiasi sosial pada anak berkebutuhan khusus sehingga dapat menjadi rujukan dalam proses intervensi pada penerapan selanjutnya.

**Kata Kunci:** Intervensi; Teman Sebaya; Kebutuhan Khusus; Inklusi

### **Introduction**

Disability is a condition that we often encountered around us today. Disability is a problem in the form of a temporary or permanent disorder which function is increasing from time to time. Children with special needs or disabilities consist of various students who have cognitive, affective, emotional, or behavior that show various abilities and academic achievements (Kang & Martin, 2018). Meanwhile, another definition refers to learning difficulties found in various minority spheres of the

school population. The obstacles they experience include physiological factor, psychological, social, or their environment or a combination from several of them (Garner, 2009).

Every child in the world needs education as a learning process, both children with special needs and without disabilities. A child is need special education when he has learning difficulties which must be handled by establishing a special education. Likewise with pre-school children, they are also included as children who need special education if they have one of the categories of disabilities and not receive special education at their educational level (Beveridge, 1993). The quality of schools and teachers is the main factor that needs to be considered, because both have an influence on student learning going forward (Heyneman & Loxley, 1983).

In facilitating education for children with special needs, now there are many special schools for them called inclusive schools. Inclusive schools are schools that constantly monitor and evaluate the progress achieved by each student, identifying every student who has lost, has difficulty being involved, or is separated from the environment. Inclusive schools must consider policy factors, practices, culture, and social conditions (Ainscow, 2001). This school model is necessary considering that inclusion is currently one of the main challenges faced by education systems around the world (Ainscow, 2005).

In achieving a better educational process, inclusive schools need a strategy in supporting children with special educational needs. This is done because of the justice factor, namely so that education can be felt by all human elements. Each school is encouraged to create education for others and increase the educational attainment of students, but each school also has to set a strategy according to the circumstances and the school context (Gross & White, 2003). For example, inclusive schools design strategies that must suitably with the needs of students with special needs, as well as general or conventional schools that must design strategies according to the conditions in their school.

The strategy that is applied to be effective must involve the child's mindset, because many obstacles that occur today are caused by this way of thinking. In addition, strategies should also include elements such as starting with existing practices and knowledge, seeing differences as opportunities for learning, making use of available resources to support learning, developing language practices, creating conditions that encourage risk-taking, and checking obstacles to participation (Ainscow, 2001; Ainscow, 2005). One of the strategies generally applied to children with special needs is intervention. Several interventions are quite effective as a strategy in improving educational outcomes for children with special needs in inclusive schools (Kuper, Saran & White, 2018; Price, 2018).

The learning environment is an important factor for children with special needs. The environment has a strong influence in shaping their personality. A report from the World Health Organization & The World Bank (2011) reveals that disability is a human rights issue. This occurs because persons with disabilities tend to experience inequality, crimes of dignity, and they are not given autonomy or freedom from their surroundings. Education inequality is everyone's concern today.

In addition to the above factors, several research results indicate that children with special needs have problems with their social environment (Carter, et al, 2016; Hamilton, 2005; Hestenes & Carroll, 2000; Koegel, et al, 2012; Orsmond, Krauss, & Seltzer, 2004. ), often get labels from their peers (Underhill, Ledford, & Adams, 2019) and experience loneliness due to environmental resistance and lack of skills to engage socially (Langher, et al, 2010; Mamas & Avramidis, 2013).

One of the important elements of the environment that affects children with special needs is peers. The existence of peers in the midst of children or adolescents is desirable, considering the lack of

parental supervision (Brown & Larson, 2009). Children with special needs need great support from peers in an inclusive environment (Simpson & Bui, 2017). Therefore, this study wants to know the impact of the role of peers who are included in an intervention for children with special needs in inclusive settings.

This systematic review aims to analyze the impact of peer-mediated interventions on children with special needs in an inclusive environment. In analyzing this, the types of intervention and peer involvement, the context of children with special needs in the inclusive class, and the impact of these interventions were also analyzed according to the selected study criteria. This is done to provide an overview of the impact of peers on children with special needs in an inclusive environment, which can then become a guide and reference in managing learning based on communication practices and peer interaction in the future.

## **Method**

### ***Article Search Procedure***

To identify this review process, literature searches were found using two online databases, namely "Education Resources Information Center (ERIC)" with the URL address [eric.ed.gov](http://eric.ed.gov) and ScienceDirect with the URL address [www.sciencedirect.com](http://www.sciencedirect.com). To simplify the search process, the searches are based on the keywords "peers" and "inclusive class", "peers" and "inclusion setting", "peers" and "inclusive setting", and "peers" and "inclusive classroom".

Several criteria established in the search process consist of inclusion and exclusion criteria. Inclusion criteria include 1) Research involving the role of peers, 2) Research in inclusion context, 3) Research from 2000 to 2019, 4) Articles that are downloaded in full text, and 5) Literature used in English. While the exclusion criteria include articles that do not have clear research procedures, articles in the form of opinions and thesis & dissertation results, and articles that do not fulfill other inclusion criteria.

### ***Systematic Review Design***

The systematic review in this study uses a meta-synthesis design with narrative presentation. Meta-synthesis design is a technique used to integrate data or findings to obtain new concepts or understanding, or to gain a deeper and more comprehensive understanding (Perry & Hammond, 2002). In conducting meta-synthesis, the data unit as a source to be synthesized can be data and qualitative or quantitative research (Strobel & Barneveld, 2009). In this case, the researcher uses quantitative articles as the data source unit for analysis.

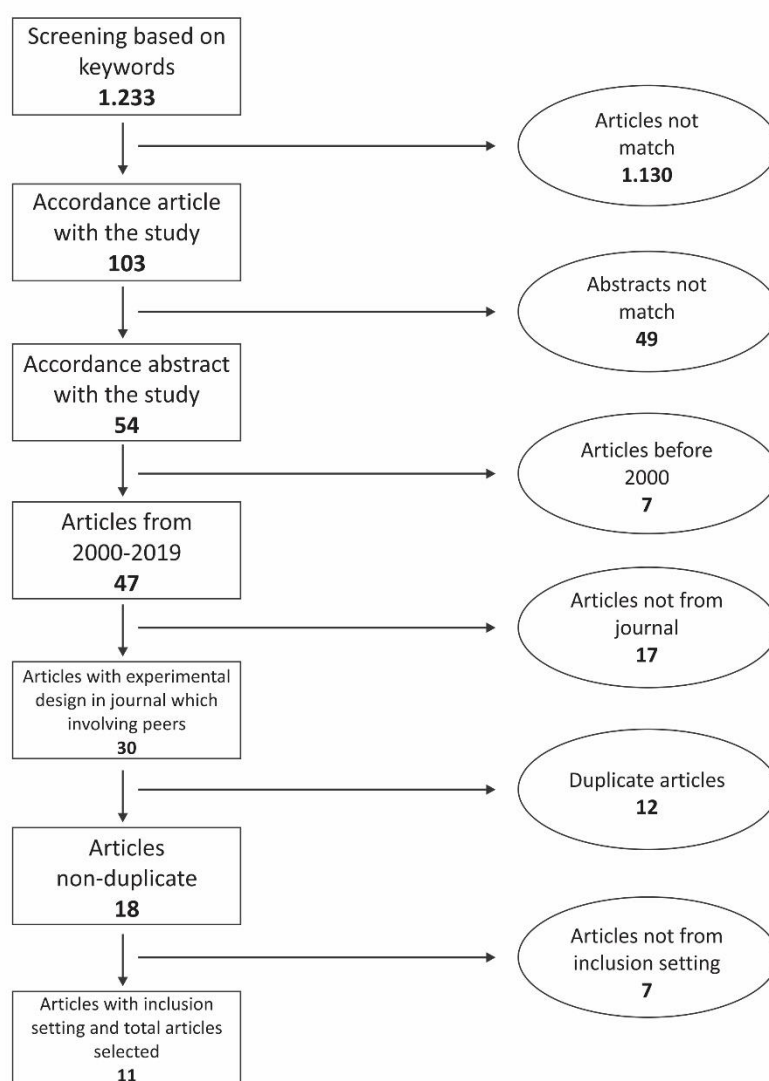
### ***Identification for Inclusion and Exclusion Criteria***

The article screening process begins by searching for articles that match with the keywords "peers" and "inclusive class", "peers" and "inclusion setting", "peers" and "inclusive setting", and "peers" and "inclusive classrooms" in the online database "ERIC" and "ScienceDirect". The initial search according to the above keywords found 1,233 articles. The next step is to screening by looking at the suitability of the title with the literature review process. In this process, 103 articles were found and 1,130 articles were excluded. Then the screening was further narrowed by reading the research abstract which resulted in 54 articles and 49 articles excluded. The next stage is screening articles

according to the specified year, namely articles from 2000-2019. There were 47 articles based on the year and 7 articles that were not suitable.

The next stage, the screening process was narrowed by focusing on experimental research articles that involving peer in the journals research. In this process, 30 articles were found. Meanwhile, other research such as dissertation results, systematic reviews, meta-analysis, books and magazines found 17 articles. Furthermore, there were several articles that were excluded because they were the same (duplicate) in the download process, this made the article changed to 18 and 12 duplicate articles were excluded. The last screening process found 11 articles and 7 articles out. 7 articles that came out were based on research that were not in the inclusion context, such as class and inclusive schools. A total of 11 selected articles were then analyzed in depth in the next process.

**Figure I.** Research Article Selection Process in accordance with the Inclusion and Exclusion Criteria



## Result and Discussion

### Interventions

Almost all articles found were 11 articles that had different interventions in their studies. Despite having different types of intervention, overall this article involved peers in the focus of the study. Several types of interventions used in the article are Collaborative Planning and Peer Support Arrangements, Facilitation of professionals and Peer Initiation, Interaction Intervention, Peer Support Intervention, Peer Imitation Intervention, Peer-Mediated LEGO® Play Intervention, Social Script Training and Peer Buddies, Instructions Time-Delay with Peer Mediation, Peer Training Intervention, Peer Coaching, and Direct Instruction and Peer Training.

Several things need to be done before implementing Collaborative Planning and Peer Support Arrangements interventions such as collaborative planning, training of professionals, and peer orientation. In practice, peers sit close to students who are the focus of intervention. Their peers then provide them with social support, academic, and motivation. The focus of intervention is children who have complex communication needs, while peers provide support based on augmentative and alternative communication (AAC) interaction strategies, such as providing communication opportunities, encouraging communication, and responding appropriately (Biggs, Carter & Gustafson, 2017).

Similar to the intervention above, the Speech-Generating Devices intervention that is mediated by peers in its application also asks peers to sit next to the participants who are intervened after attending the training. The intervention applied in Chung & Carter's (2013) study introduced an intervention to each class and observations of changes in three consecutive sessions. Training will be resumed if there are no changes to the intervention. In another study, the peer interaction intervention was carried out by Martin (2000), he targeted the intervention focus with toys.

Carter, et al, (2007) applied peer support interventions. The application of these interventions is based on the core components of peer support interventions (Carter & Kennedy, 2006). Some of these components include student selection, peer training, peer support, and adult monitoring. Another intervention used by Garfinkle & Schwartz (2002) focuses on imitation peer interventions. This intervention process is carried out by creating small groups consisting of children with disabilities and non-disabled children. The teacher plays a role by giving examples of how something can be used which then can be followed by other members.

Hu, Zheng and Lee (2018) in their intervention involve peers when children with ASD are given 30 minutes by the principal to be free to play at will with games that have been provided previously. The teachers monitor the children's play activities and stop if there are problems with other children. The playing process will be finished when the bell rings. The Social Script Training and Peer Buddies intervention conducted by Hundert, Rowe and Harrison (2014) aims to make children with ASD participate with peers and have reciprocal interactions.

The intervention conducted by Jimenez et al. (2012) included peer-mediated science response training using time delays in inclusive inquiry science lessons and peer-mediated embedded instruction on the use of KWHL charts in inclusive science lessons. The intervention in the research of DeSchryver, et al, (2008) includes three stages. First, regular students are given reasons to develop friendships with students with special needs. This training format varies depending on the age of the participating students. Second, each group of students is led in a general discussion to explain the strengths of classmates with ASD. Third, peers are involved in guided discussions related to several predetermined themes.

Peer coaching conducted by Tschantz and Vail (2000) has a procedure that the peer coaching session takes place twice a week and takes 35 to 45 minutes. Sessions are conducted individually for each participant with an early childhood special education teacher. The Direct Instruction intervention

and Peer Training implemented by Banda, Hart and Girtz (2010) were conducted by researchers. Researchers sit with students on chairs or on the floor during training and as requested during data collection sessions. This intervention has two important parts, namely training sessions for 4-5 minutes before data collection and conducting adult confirmation during data collection.

### **Children with Special Needs Context in Inclusive Class**

The variety of children with special needs in schools or inclusion classes does not only include one or two types of children with needs, but more than that. Several types of children with special needs can be in one inclusion room. In several articles selected in this study, researchers still pay more attention to cases of children with Autism Spectrum Disorder (Banda, Hart & Girtz, 2010; Chung & Carter, 2013; DeSchryver, et al., 2008; Garfinkle & Schwartz, 2002; Hu, Zheng & Lee, 2018; Hundert, Rowe & Harrison, 2014).

From several contexts of ASD children who participated in several interventions in the above article, their age and gender characteristics also differed from one another. Like the research Chung and Carter (2013) who chose two children with ASD, namely a boy aged 12 years and a girl aged 11 years. In contrast to Garfinkle & Schwartz (2002) who do not only focus on children with autism, but also on children with developmental delays. Three autistic children aged 4 years 10 months, 3 years 7 months, and 5 years 5 months were the focus of their research participants.

Hu, Zheng and Lee (2018) identified three boys of early age with ASD as the focus of their intervention. The three boys are 4-6 years old. Whereas the focus of intervention in the research of Hundert, Rowe and Harrison (2014) consists of 3 children with ASD aged 4 years 8 months, 5 years 10 months, and children 5 years 11 months. In another study, two children with ASD aged 7 years and one child with Asperger aged 10 years were the main participants of the study DeSchryver, et al, (2008). And finally, Banda, Hart and Girtz (2010) with a focus of intervention on 2 boys aged 6 years.

In addition to the dominance of articles that focus on children with ASD, there are also several articles that focus on other types of disabilities such as 4 middle class students aged 10, 13, 13, 16 years with complex communication needs (CCN) by Biggs, Carter and Gustafson (2017), 2 pre-school early aged 2 years 10 months and 3 years 5 months who experience severe multiple disabilities (Martin, 2000), 4 middle class students consisting of 1 boy and 3 girls with moderate and high disabilities and speech impairment (Carter, et al, 2007), 5 students with moderate and high disabilities (Jimenez, Browder, Spooner & Dibiase, 2012), and 14 students with developmental delays (Tschantz & Vail, 2000).

### **The Impact of Peer Involvement**

A total of 11 articles selected indicate that peers take part in the development process of children with special needs. Even though it is only a mediation of the process of an intervention, the role of peers has several positive impacts for them. The results of the analysis answered how big and strong the peer impact was in the 11 articles.

In general, peer involvement in an intervention can improve communication patterns, interactions, social skills and social initiation of children with special needs in an inclusive environment (Banda, Hart & Girtz, 2010; Biggs, Carter & Gustafson, 2017; Carter, et al, 2007. ; Chung & Carter, 2013; DeSchryver, et al, 2008; Garfinkle & Schwartz, 2002; Hu, Zheng & Lee, 2018; Hundert, Rowe & Harrison, 2014; Tschantz & Vail, 2000) and can make children with special needs receive a positive

impact in the form of vocabulary lessons and knowledge concepts (Jimenez, et al, 2012). With the emergence of a positive impact on children with special needs, peer training also needs to be continued at a later time (Tschantz & Vail, 2000).

The results of the peer impact above are also corroborated by several other studies outside the selected articles. One of them is from Carter, et al, (2016) which states that peer intervention can increase children's social interaction with ASD and increase motivation to interact with peers in social activities (Gengoux, 2015). The involvement of other students in a game can also make children with special needs involved socially with them, increase initiation, and have more positive impacts during interactions with peers (Koegel, et al, 2012).

The findings also show that the opportunity to generate social interaction is not only in non-academic environments, but also in academic settings (Banda, Hart & Girtz, 2010). Peer-mediated interventions not only can increase the social interaction of children with special needs, but also can increase peer initiation who has not been trained before (DeSchryver, et al, 2008). Another study tries to reveal that peers are not always the main choice as a communication partner for children with special needs, because the role of older people is also often a friend to interact with children with special needs (Harper & McCluskey, 2003).

**Table 1.** Summary of analysis on selected research articles in this study

Author	Research Design	Context	Subjects or Participants	Environment Criteria	Impact
Biggs, et al, (2017)	Experiment research (collaborative planning and peer support arrangements)	Severe disability and complex communication needs (CCN)	4 middle-class students (ages 10, 13, 13, and 16), special educators, general educators, professionals, and SLPs	Inclusive class	Students show a direct increase and substantial in communication levels
Chung & Carter (2013)	Experiment research (Paraprofessional facilitation, peer initiation, speech-generating devices (SGDs) and interviews)	Intellectual disability (Autism)	1 Male (12 years old and parents) 1 Female (11 years old and parents) 2 Peers 3 Professionals 4 Class teacher	Inclusive environment	Student interaction with peers increased in three classrooms and use of SGD increased in four classrooms.
Martin (2000)	Experiment research (Peers Interaction Intervention)	Severe multiples disabilities	2 pre-school children	Inclusive childcare	Young children with disabilities can improve motor responses.
Carter, et al, (2007)	Experiment study (Peers Support Intervention) and observation	Severe and moderate disabilities, and speech/language impairment	4 Middle class students (1 boy & 3 girls)	Inclusive secondary school class	The peer interactions of participants with severe disabilities increased

Garfinkle & Schwartz (2002)	Experiment research (peer imitation intervention)	Autism and developmental delays	4 boys (4 years 10 months, 3 years 7 months, 4 years 4 months, 5 years 5 months)	Inclusion pre-school class	Participants improve peer behavior in small groups and in free play settings. The increase was also seen in social behavior
Hu, et al, (2018)	Experiment study (Peer-Mediated LEGO® Play Intervention)	Autism Spectrum Disorders (ASD)	3 preschool boys with ASD and 13 developing children	Inclusion environment	Children with ASD increase their social initiation and responsiveness
Hundert, et al, (2014)	Experiment research (Social Script Training and Peer Buddies)	Autism Spectrum Disorders (ASD)	3 children (4 years 8 months, 5 years 10 months, and 5 years 11 months)	Inclusive class	General increase in peer interaction for play in inclusive classrooms
Jimenez, et al, (2012)	Experiment research (peer-mediated time-delay instruction)	Severe and moderate Intellectual disabilities	6 students as peer tutors aged 11 years, 5 students with special needs, and 1 general education teacher	Inclusive class	The intervention had a positive effect on students' science vocabulary and knowledge concepts
DeSchryver, et al, (2008)	Experiment study (peer training intervention)	ASD (autism & asperger syndrome)	2 children with autism, 1 Asperger's child, 9 peers	Inclusive school	Increased initiation by trained peers, increased initiation and response in students with ASD.
Tschantz & Vail (2000)	Experiment study (Peer Coaching)	Disabilities (developmental delays)	3 Early childhood education teachers and 14 students with developmental delays	Inclusion pre-school	Peers help in improving communication and need to continue
Banda, et al, (2010)	Experiment research (Direct Instruction and Peer Training)	Autism Spectrum Disorders (ASD)	2 boys aged 6 years and 2-3 peers	Inclusive class	Increased initiation and social responses were fast and strong in both participants and was effective in improving social skills in participants with ASD.



## Conclusion

The involvement of peers in increasing the social interaction of children with special needs has a positive impact on them. Although not directly, peer involvement can also be applied in a peer-mediated intervention in its application in an inclusive environment, both in class and in inclusive schools. In general, interventions which involved peers are effective in children with special needs and specifically for children with Autism Spectrum Disorders (ASD).

Literature review currently only conducted on two online databases with the search keywords “peers” and “inclusive class”, “peers” and “inclusion setting”, “peers” and “inclusive setting”, and “peers” and “inclusive classroom”. Future studies are suggested to expand the context of searching for articles in several other online databases, because it will enrich the same research at a later date. In addition, the age criteria for the focus of the intervention or research need to be narrowed down to a certain age, for example adolescents or pre-school children, or middle-class children who have special needs.

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