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SOCIAL ACTIVITY CARD FOR SOCIAL SKILLS OF AUTISM SPECTRUM DISORDER (ASD): META-ANALYSIS AND NEED ASSESSMENT STUDY

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Abstract

Children with Autism Spectrum Disorder (ASD) can experience serious deficits in their social interactions due to their limited social skills. This study aims to conduct a literature review on the effectiveness of social activity cards for social skills and the field's needs for using social activity cards for individuals with ASD who experience social skill problems. The research methods included a meta-analysis (n = 20 articles) and a needs assessment (n = 23). The results of the meta-analysis indicate that the use of social activity cards has a fairly strong influence, making it effective in improving the social skills of autistic children. In the study of the analysis of the needs of social activity cards to improve the social skills of children with ASD in a special school, teachers, as many as 23 respondents, showed that the majority of respondents agreed as much as 58.52% (f = 13) and strongly agreed as much as 34.78% (f = 8). This means there is a need for and a positive response to social activity card media to improve the social skills of children with ASD among Special School teachers.

Keywords: Autism Spectrum Disorder (ASD); social activity card; social skill

Abstrak

Anak dengan Autism Spectrum Disorder (ASD) dapat mengalami hambatan yang signifikan dalam interaksi sosial akibat keterbatasan keterampilan sosial yang mereka miliki. Penelitian ini bertujuan untuk melakukan tinjauan literatur mengenai efektivitas kartu aktivitas sosial (social activity card) terhadap keterampilan sosial serta mengidentifikasi kebutuhan penggunaan kartu aktivitas sosial bagi individu dengan ASD yang mengalami permasalahan keterampilan sosial. Metode penelitian yang digunakan meliputi meta-analisis terhadap 20 artikel penelitian (n = 20) dan analisis kebutuhan yang melibatkan 23 responden (n = 23). Hasil meta-analisis menunjukkan bahwa penggunaan kartu aktivitas sosial memiliki pengaruh yang cukup kuat sehingga efektif untuk meningkatkan keterampilan sosial anak dengan autisme. Sementara itu, hasil analisis kebutuhan mengenai penggunaan kartu aktivitas sosial untuk meningkatkan keterampilan sosial anak dengan ASD di Sekolah Luar Biasa (SLB) menunjukkan bahwa dari 23 guru responden, sebagian besar menyatakan setuju sebesar 58,52% (f = 13) dan sangat setuju sebesar 34,78% (f = 8). Temuan ini menunjukkan adanya kebutuhan serta respons positif terhadap media kartu aktivitas sosial sebagai sarana untuk meningkatkan keterampilan sosial anak dengan ASD di kalangan guru Sekolah Luar Biasa.

Kata kunci: Autism Spectrum Disorder (ASD), keterampilan sosial, social activity card

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INTRODUCTION

Children diagnosed with Autism Spectrum Disorder (ASD) experience persistent challenges in social communication and exhibit restricted and repetitive behaviors (Guivarch et al., 2025; Carneiro et al., 2024). Children with ASD can experience significant deficits in their social interactions due to their limited social skills (Pavlou & Garmpis, 2025; Birnschein et al., 2021). These individuals often experience challenges with social participation and relationship building (Ashcraft et al., 2025). Communicating with peers often presents a challenge for individuals with ASD (Babb et al., 2021). Deficits in social functioning are a hallmark feature and a key diagnostic criterion for ASD (Robinson & Nohelty, 2024; Christopher & Shakila, 2015).

. Social problems can negatively impact children's learning and self-esteem, making it difficult for them to build positive relationships (Christopher & Shakila, 2015). Deficiencies in social skills can negatively affect several important domains, including academic achievement, interpersonal relationships, behavior, mental health, and community social outcomes (Silveira-Zaldivara et al., 2021). It is crucial to address these issues and teach social skills from an early age. Children who fail to develop social skills are at risk of experiencing social and emotional problems later in life (Evangelou et al., 2026).

Social skills are a crucial element in the personality development of individuals with ASD (Badiah, 2018). Social skills pave the way for making and maintaining new friends, discovering and developing new skills from others for personal growth. The social skills required of individuals with ASD include play, conversation, emotional, problem-solving, and conflict management and decision-making skills (Selvaraj & Christopher, 2021). The social skills of children with ASD are crucial for their learning process (Hassan & Khairuddin, 2023).

A method considered effective in addressing social skills issues is using everyday activities to develop social and behavioral skills (Mujahid, 2022). Components of activities that can improve social skills include: 1) Creating communication using verbal and visual language. 2) Developing new routines by forming new habits. 3) Monitoring children's mental and physical development. 4) Establishing collaboration and regular communication with the school. 5) Utilizing human resources at home. 6) Practicing literacy with children. 7) Consistently involving children in daily activities at home. 8) Encouraging children's social relationships with friends and teachers by utilizing technology (Mujahid, 2022). The use of visual media plays a crucial role in improving the social skills of children with ASD, for example, through picture cards tailored to events in their daily lives (Walsh et al., 2025). Social Activity Cards are a card-based intervention to help children with autism improve their social skills by providing experiences using cards to communicate in their environment (Prince et al., 2023). Interventions using media to improve social skills have shown moderate to strong effectiveness in children with ASD (Alahmari et al., 2025).

With effective intervention, children with ASD can learn important social skills that can help reduce deficits and strengthen social competence (Selvaraj & Christopher, 2021). Social activity card interventions to improve social and play skills can improve quality of life and impact other developmental domains (Khatab et al., 2024; Robinson & Nohelty, 2024). Based on this background regarding the social skills challenges of ASD and the effectiveness of using social activity cards, this study aims to conduct a literature review on the effectiveness of social activity cards for social skills and the needs of the field for using social activity cards for children with ASD experiencing social skills challenges. Therefore, integrating a meta-analysis of social activity card effectiveness with a needs assessment of special school teachers represents a novel approach that provides an evidence-based, practice-oriented foundation for developing social activity cards tailored to the real needs of educational settings for children with ASD.

METHOD

Research Design

The research method used a meta-analysis and needs assessment study through a quantitative descriptive study. The data collected in this study are from a meta-analysis of the literature on the effectiveness of social activity cards for children with ASD. In this study, the selected data set was analyzed using a meta-analysis model that identifies and analyzes literature on the effectiveness of using social activity cards for children with ASD (Álvarez-García et al., 2019). The needs assessment data came from 23 teachers in special schools regarding social skills issues and their needs for social activity cards to improve children with ASD's social skills in schools.

Data Collection

The meta-analysis data were collected from articles published in internationally accredited journals, thereby providing a representative sample (Durán-Sánchez et al., 2018). This study used journals found in the Scopus database. Data were drawn from relevant studies published from 2007 to 2025. The multidisciplinary bibliographic database Scopus was also used to search for information in articles from scientific journals (ASJC), classified into a hierarchical structure of fields and subfields (Hassan et al., 2019). This database was selected based on criteria:

Table 1. Selection Criteria

Selection Criteria	Description
Quality Index	Journals indexed in Scopus with quality indicators comparable to the SCImago Journal Rank (SJR).
Publication Period	Articles published between 2007 and 2025.
Accessibility and Citation Data	Articles provide citation information and full-text content that can be accessed or downloaded.
Research Topic Relevance	Articles discuss social activity cards and social skills.

The article search used Publish or Perish and the Scopus database processed by biblioshiny, with the search limited to articles containing the keyword "social activity card" in the title. This is included in quotation marks to get all documents containing a combination of words in the document title and also contains possible combinations with the term social skill* used to get articles with titles containing words related to impact*, social activity card, socio card*, and social skill* so as to get articles about innovation and effectiveness of social activity card, socio card to improve social skills. The collection of needs assessment data uses a questionnaire using a Likert scale (1-4) about social skills problems and teachers' needs for social activity cards to improve the social skills of ASD children in schools. The data is presented quantitatively and qualitatively to map the need for words for social activity cards for ASD in schools.

Data Analysis

The documents included in this analysis contain bibliographic information obtained after a manual review of 20 relevant documents found in Scopus. Duplicates from 628 documents were removed, and author and journal names were normalized according to the research topic, resulting in 50 articles, of which 20 were processed. This entire process is summarized in a three-stage search strategy shown in Figure 1.

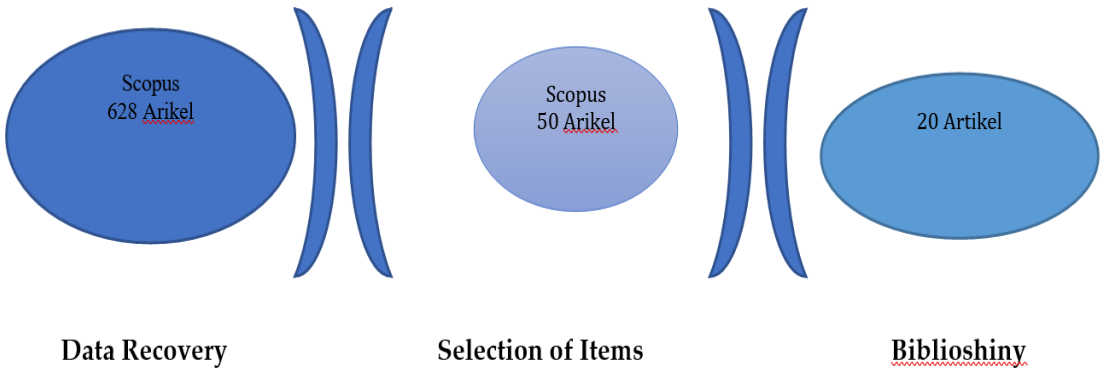

Figure 1. Article data analysis process

VOS software was used to analyze all data identified in the literature review and identify key themes. JASP was used to determine the generalizability of the effectiveness of using social activity cards to improve the social skills of children with ASD. Quantitative data analysis of teachers' needs for social activity cards was conducted using SPSS, with descriptive analysis to determine the percentage of need. A qualitative analysis of social skills problems was conducted in NVivo to map the problems and the vocabulary to be included in the social activity cards.

RESULTS AND DISCUSSION

The results of a meta-analysis of 20 journals discussing the effectiveness of using social activity cards are as follows:

Table 2. Literature Review

Study	yi	sei	Educational level
Gates et al., 2017	0.51	0.14	Elementary School–Junior High School
Narzisi et al., 2024	0.37	0.09	Junior High School–Senior High School
Soares et al., 2021	0.42	0.11	Elementary School–Senior High School
Bellini et al., 2007	0.40	0.13	Elementary School–Junior High School
Reichow et al., 2013	0.38	0.12	Elementary School–Junior High School
Dekker et al., 2019	0.39	0.18	Kindergarten–Primary School
Laugeson et al., 2012	0.45	0.14	Elementary School–Junior High School
Kasari et al., 2012	0.43	0.14	Elementary School–Junior High School
Beaumont & Sofronoff, 2008	0.46	0.16	Elementary School–Senior High School
Frankel et al., 2010	0.44	0.15	Elementary School–Senior High School
Parsons & Cobb, 2011	0.41	0.18	High School–College
Ke & Im, 2013	0.42	0.16	Elementary School–Junior High School
Grynszpan et al., 2014	0.44	0.16	Elementary School–Junior High School
Carneiro et al., 2024	0.46	0.12	Elementary School–Junior High School
Spain et al., 2017	0.43	0.15	Elementary School–Junior High School
Wood et al., 2009	0.44	0.14	Junior High School–Senior High School
Kreslins et al., 2015	0.41	0.15	Elementary School–Senior High School
Wang et al., 2024	0.45	0.11	Elementary School–Junior High School
White et al., 2007	0.40	0.17	Elementary School–Junior High School
Gates et al., 2023	0.42	0.12	Kindergarten–Primary School

Table 3. Random-Effects Model (k = 20)

	Estimate	se	Z	p	CI Lower Bound	CI Upper Bound
Intercept	0.604	0.0437	13.8	<.001	0.518	0.689

Note. Tau² Estimator: Restricted Maximum-Likelihood

A meta-analysis was conducted using the Random-Effects Model of 20 studies (k = 20) on the use of social activity cards to improve the social skills of autistic children. The results of the meta-analysis showed that the estimated combined effect size was 0.604 with a standard error of 0.0437. The statistical test value was Z = 13.8, with $p < 0.001$, indicating that the results were statistically significant, with a 95% confidence interval (CI) of 0.518-0.689. The analysis showed an effect size of 0.604, which

falls within the moderate-to-large effect size range. It can be concluded that the use of social activity cards has a strong influence, making it effective in improving the social skills of autistic children.

Table 4. Heterogeneity Statistics

Tau	Tau²	I²	H²	R²	df	Q	p
0.000	0 (SE= 0.0117)	0%	1.000	.	19.000	1.381	1.000

The heterogeneity test results show a Tau value of 0.0000 and Tau2 = 0, indicating no variation in effects between the regions analyzed. An I2 value of 0% indicates no heterogeneity between studies and samples. The results of this analysis indicate that the heterogeneity test shows the use of social activity cards consistently improves the social skills of autistic children. This is indicated by the absence of heterogeneity in the data (I2 = 0%), suggesting that the media has a relatively uniform effect across research samples, including kindergarten, elementary, middle, and high school students with autism.

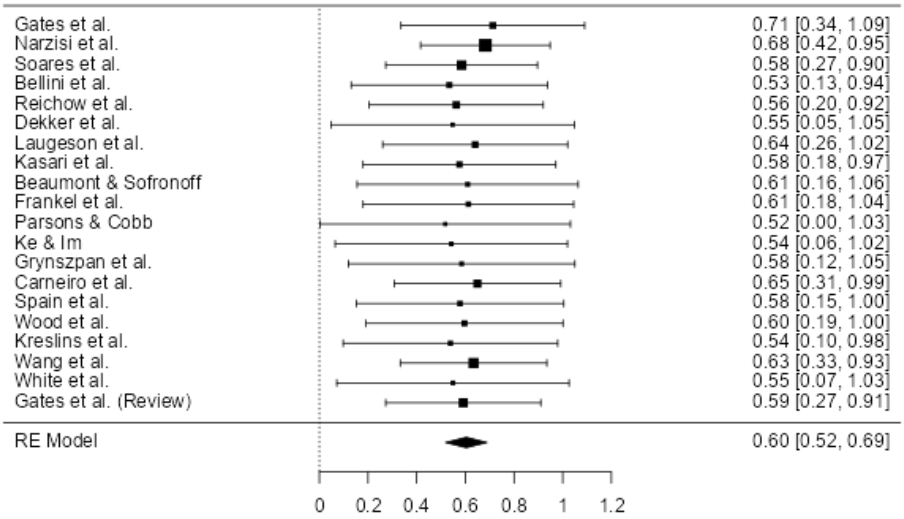

Figure 2. Forest Plot

Based on meta-analysis data, the use of social activity cards to improve social skills has a significant effect size of 0.60 (95% CI = 0.52–0.69). This effect size indicates that using social activity cards significantly improves children with autism's social skills, as the confidence interval (CI) does not cross zero. This categorically indicates a moderate to large effect, indicating the media has a substantial impact. The forest plot results indicate that the 20 studies analyzed showed a positive effect. This is indicated by effect size values ranging from 0.52 to 0.71, with most studies falling within the moderate effect range. Meta-analyses based on effect sizes showed the highest value in the study by Gates et al. (2017) (g = 0.71), followed by Narzisi et al. (2024) (g = 0.68) and Carneiro et al. (2024) (g = 0.65). These findings indicate that the use of social activity cards from the analyzed studies provides a greater contribution to improving the social skills of autistic children at the elementary school level.

Table 5. Publication Bias Assessment

Test Name	value	p
Fail-Safe N	1316.000	<.001
Begg and Mazumdar Rank Correlation	-0.411	0.011
Egger's Regression	-0.728	0.467
Trim and Fill Number of Studies	6.000	.

Note. Fail-safe N Calculation Using the Rosenthal Approach

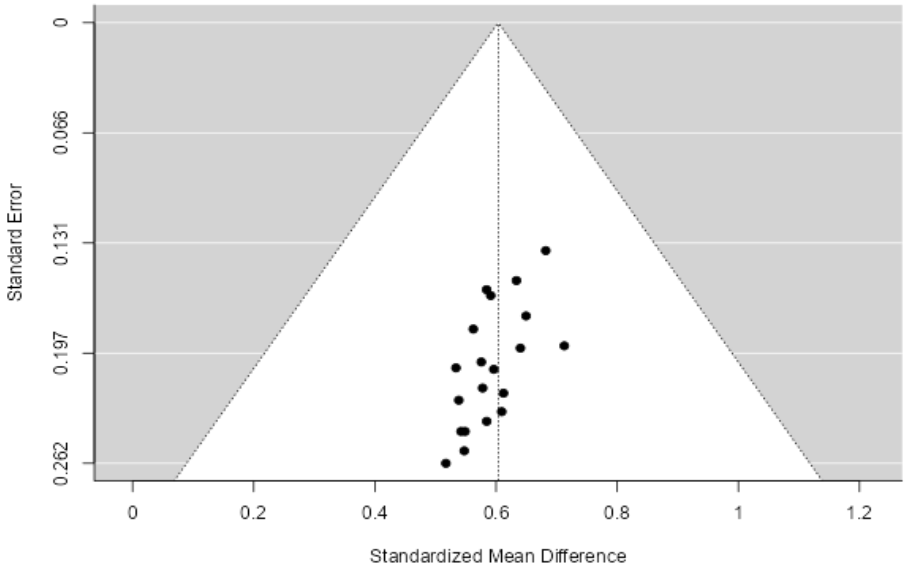

Figure 3. Funnel Plot

The funnel plot analysis shows a relatively symmetrical distribution of studies. Studies with small standard errors are concentrated at the top of the graph, while studies with large standard errors are spread out at the bottom, forming an ideal funnel pattern. This pattern indicates no strong bias in the study results, so the meta-analysis is valid. This is evident in the 20 studies that demonstrate the effectiveness of social activity cards in improving children with autism's social skills. An analysis of the social skills needs of 23 special needs school teachers indicated that social skills issues for children with ASD need to be addressed. The results of the qualitative study using NVivo were divided into five subthemes: (1) overcoming autism-specific barriers, (2) social capital, (3) building independence and self-confidence, supporting communication and expression, and (5) the nature of humans as social beings.

Table 6. Qualitative Analysis Coding

Sub-themes	Code	Frequency of Mention	Example of Respondent Statements
Overcoming Autism-Specific Barriers	Interaction difficulties; Communication barriers; Nonverbal	4	*"Very Important, Because the Students I Forgive Still Have Difficulties"*
Social Capital in the Environment	Mixture; Interaction; Accepting new things; Social life	6	*"Very important because autistic children have problems or obstacles in social skills."*
Building Independence & Self-Confidence	Independence; Self-confidence; Foundation	3	*"Very important because autistic children tend to be one-way, especially non-verbal..."*
Supporting Communication & Expression	Communication aids; Tools (cards); Expression	2	*"Very important because it provides capital for children to socialize with their surroundings."*
The Nature of Humans as Social Beings	Social beings; It's natural	2	*"Very important because social skills will make it easier for autistic children to integrate with their environment and accept new things in society."*

The analysis of the need for social activity cards to improve the social skills of children with ASD among 23 special needs school teachers showed that the majority of respondents (58.52%) agreed (f = 13), and 34.78% (f = 8) strongly agreed. This indicates a need and positive response to social media activity cards to improve the social skills of children with ASD among special needs school teachers. The need for words has been mapped according to Table 7.

Table 7. Need for social activity cards

Category	Frequency	Percentage
Strongly Agree	8	34,78%
Agree	13	56,52%
Disagree	1	4,35%
Strongly Disagree	1	4,35%
Total	23	100%

Table 7. Social Activity Card Words

Greeting	F	Starting a conversation	F	Saying thank you	F	Asking for permission/help	F	Playing with friends	F	Expressing feelings	F	Follow instructions	F
Hi	10	Hi	4	Thank you	10	Saying the desired word (pee, drink, eat)	10	Let's play	10	Hitting the head (Sad/angry)	10	Take	10
Hello	10	Saying what you see	4	Thank you	6	Extending hand	4	Come here (Here)	8	Laughing	8	Sit	8
Good Morning	10	What are you doing?	4	Expression of joy (jumping)	2	I want to eat	4	Borrow	8	Sluggish	4	Enter	8
Saying name	6	Excuse me	2			I want to poop	4	Call names	4	Sleepy	4	No	8
Good afternoon	6	Ma'am	2			Excuse me	4	Go there (There)	2	Annoyed	4	Delete	8
Good evening	6	Sir	2			Write	4	Where to (Go)	2	Sorry	2	Write	8
Good night	6	Name calling	2			Excuse me	2	Grab	2	Yey	2	Put	6
How are you	6	Hello	2			Please	2	Hit	2	Hooray	2	Stand	6
Holding a shoulder	4	How are you	2			Withdrawing hand	2	Share food	2	Good	2	Stay	6
Assalamualaikum	2	Why?	2			May I go out? May I get a snack?	2	Helping friends	2	Don't want to	2	Distant	6
Slapping a back	2	Pulling hands	2			Excuse me to go to the toilet	2	Line up while playing	2	Want to	2	Throw	6
Hugging	2	Jumping around	2			Please get something	2	Forgiving	2	Maybe	2	Eat	6
Waving	2	What's your name?	2			I want to sleep	2	Tidying up toys	2	Can't	2	Drink	4
Excuse me	2	Where do you live?	2			I want to open the door	2	Entertaining friends	2	Ouch	2	Save	4
What's your name?	2	Where do you go to school?	2			I want to close the door	2	Sharing toys	2	Screaming	2	Look	4
Where are you going?	2	Let's play	2			Holding hand	2	Help	2	Slapping the table	2	Read	4
May I ask a question?	2									Clapping	2	Clean	4
										Hurts the face	2	Leave class	4
										Happy	2	Take off	2
										Scared	2	Okay	2
										Nervous	2	Yes	2
										Surprised	2	Understood	2
										Confused	2	Ready	2
										Embarrassed	2	Can	2
										Excited	2	Good	2
										Disgusted	2	Tidy up	2
										Bored	2	Put on	2
										Painful	2	Wash hands	2
										Expressing feelings/facial expressions		Imitate	2
										Hitting the head (Sad/angry)		Take a break	2
										Laughing		Stop	2
										Sluggish		Squat	2

Discussion

A needs analysis of social skills issues experienced by 23 respondents in special education schools indicated that social skills issues for children with ASD need to be addressed, divided into five subthemes: (1) overcoming autism-specific barriers, (2) social capital, (3) building independence and self-confidence, fostering communication and expression, and (5) the nature of humans as social beings. This aligns with the statement that social skills are divided into five dimensions: peer relationships, self-management, academic ability, compliance, and assertiveness (Caldarella & Merrell, 1997). A study also found that children with autism spectrum disorder have unique characteristics in social skills, including communication, cooperation, and social adaptation (Syriopoulou-Delli et al., 2018). Children with autism spectrum disorder experience difficulties in developing, maintaining, and understanding peer relationships (Kurniastuti et al., 2023). If left unaddressed, this can impact the social development, emotional well-being, academic performance, and quality of life of children with autism spectrum disorder (Karna & Stefaniuk, 2023).

Based on data analysis, the use of social activity cards has a significant impact, making it effective in improving children with autism's social skills. Furthermore, these findings indicate that the use of social activity cards, as analyzed in the studies, makes a greater contribution to improving the social skills of children with autism at the elementary school level. Addressing the social skills of children with autism spectrum disorder requires interventions based on social stories and visuals. This aligns with research by Bateman et al. (2023), which explains that visual-based cards can help children with autism spectrum disorder engage in more structured conversations, providing them with topics, answer options, and visual support for participation. This allows interaction, with children taking turns speaking (turn-taking), pointing, choosing, commenting, and listening to peer responses. Furthermore, Thiemann & Goldstein (2001) in their research, which focused on the ability of autistic children to seek attention from peers (calling names, pointing to objects), initiate conversations related to activities, make requests of peers, and provide responses, explained that social stories can help children understand the meaning of social situations. Written text cues (concrete scripts) can be used to provide autistic children with speech options, thereby reducing cognitive and linguistic burden. The use of visual-based social stories can present social situations in a concrete, visual, simple, and structured way, thus helping children with autism spectrum disorder understand abstract social situations, practice recognizing emotions such as facial expressions and characters' feelings, connect events with emotional responses, and differentiate between anger, fear, happiness, sadness, and surprise (Silva et al., 2021).

Interventions for social skills in children with autism spectrum disorder can be developed using social media activity cards. Social stories and visual-based media can be created with several components, such as cartoon images, simple social sentences according to the child's developmental age, and a story sequence that is easy to create, easy to use by practitioners, does not disrupt class routines, and is acceptable to practitioners and parents (Caballero & Connell, 2016). The use of media

with social scripts and visual cues can improve structured verbal communication, help children use sentences according to context (pragmatic), reduce repetitive speech, improve the quality of interaction with partners where it is designed in the form of a simple physical visual card containing: one social sentence/phrase, a simple picture, the context of the activity, the name of a peer (Ganz et al., 2008). Thus, the development of social skills interventions for children with autism spectrum disorder can be achieved through the use of social stories and visual-based media, such as social activity cards.

CONCLUSION

Based on the data analysis, it was found that the social skills of children with autism spectrum disorder need to be addressed, and the need for social skill development through social stories and visual media is crucial. Developing social skills in children with autism spectrum disorder is crucial because it will have long-term impacts on academic performance and quality of life. Interventions can be developed using social stories and visual media, which can assist children with autism spectrum disorder in several ways, including understanding social situations, initiating and maintaining conversations, interacting with peers, recognizing emotions, taking turns, using sentences appropriately in context, and increasing independence in social activities. Social activity cards are a social story- and visual-based intervention tool because they present social situations in a concrete, simple, and structured manner. This tool makes it easier for practitioners to use and create, without disrupting classroom routines. Therefore, social activity cards can be used by teachers to develop children's social skills. Social activity cards can be utilized as an evidence-based intervention tool by special education teachers and therapists to enhance the social skills of children with ASD. The identified vocabulary domains offer practical guidance for designing social communication activities that address the needs of children with ASD. In addition, the content domains and vocabulary categories identified in this study provide an empirical foundation for the development and validation of social activity card products specifically tailored to children with ASD. Therefore, these findings have important implications for the development of social skills intervention programs and instructional media in both special and inclusive educational settings.

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REFERENCES

Alahmari, F. S., Alhabbad, A. A., Alshamrani, H. A., & Almuqbil, M. A. (2025). Effectiveness of social skills training interventions for children with autism spectrum disorder: A systematic review and meta-analysis. *Saudi Medical Journal*, *46*(3), 226–237. https://doi.org/10.15537/smj.2025.46.3.20240788

Ashcraft R, Delzell E, Mckinney M, et al. Enhancing social skills in autistic children through magic arts. *Health Psychology Research*. 2025;13(2):e81240003. https://doi.org/10.14440/hpr.2685038

Babb, S., Raulston, T. J., McNaughton, D., Lee, J.-Y., & Weintraub, R. (2021). The effects of social skill interventions for adolescents with autism: A meta-analysis. *Remedial and Special Education*, 42(5), 343-357.

Bateman, K. J., Wilson, S. E., Gauvreau, A., Matthews, K., Gucwa, M., Therrien, W., Nevill, R., & Mazurek, M. (2023). Visual supports to increase conversation engagement for preschoolers with autism spectrum disorder during mealtimes: An initial investigation. *Journal of Early Intervention*, 45(2), 163–184. https://doi.org/10.1177/10538151221111762

Bellini, S., Peters, J. K., Benner, L., & Hopf, A. (2007). A meta-analysis of school-based social skils interventions for children with autism spectrum disorders. *Remedial and Special Education, 28*(3), 153–162. https://doi.org/10.1177/07419325070280030401

Beaumont, R., & Sofronoff, K. (2008). A multi-component social skills intervention for children with Asperger syndrome: the Junior Detective Training Program. *Journal of child psychology and psychiatry, and allied disciplines*, *49*(7), 743–753. https://doi.org/10.1111/j.1469-7610.2008.01920.x

Birnschein, A.M., Paisley, C.A.,Tomeny., & Theodore, T.S. (2021). Enhancing social interactions for youth with autism spectrum disorder through training programs for typically developing peers: A systematic review. *Research in Autism Spectrum Disorders*, 84(1), 101784. DOI:10.1016/j.rasd.2021.101784

Caballero, A., & Connell, J. E. (2016). Evaluation of the effects of social cue cards for preschool age children with Autism Spectrum Disorders (ASD). In JBAIC (Vol. 1, Number 1).

Caldarella, P., & Merrell, K. W. (1997). Common dimensions of social skills of children and adolescents: A taxonomy of positive behaviors. *School Psychology Review*, 26(2), 264–278. https://doi.org/10.1080/02796015.1997.12085865

Carneiro, T., Carvalho, A., Frota, S., & Filipe, M. G. (2024). Serious games for developing social skills in children and adolescents with autism spectrum disorder: A systematic review. *Healthcare*, *12*(5), 508. https://doi.org/10.3390/healthcare12050508

Christopher, S., & Shakila, C. (2015). Social skills in children with autism. *Indian Journal of Applied Research*, 5 (1), 139-141. Doi: 10.13140/RG.2.2.20772.78724.

Dekker, V., Nauta, M. H., Timmerman, M. E., Mulder, E. J., van der Veen-Mulders, L., van den Hoofdakker, B. J., van Warners, S., Vet, L. J. J., Hoekstra, P. J., & de Bildt, A. (2019). Social skills group training in children with autism spectrum disorder: a randomized controlled trial. *European child & adolescent psychiatry*, *28*(3), 415–424. https://doi.org/10.1007/s00787-018-1205-1

Durán-Sánchez, A., Álvarez-García, J., Del Río-Rama, M. D. l. C., & Oliveira, C. (2018). religious tourism and pilgrimage: Bibliometric overview. *Religions*, *9*(9), 249. https://doi.org/10.3390/rel9090249

Evangelou, C., Pappa, A., Gkanis, I., Iatraki, G., & Soulis, S. G. (2026). Towards developing early intervention programmes supporting social skills for autistic children in early childhood: a systematic review. *European Journal of Special Needs Education*, *41*(1), 1–19. https://doi.org/10.1080/08856257.2025.2491193

Ganz, J. B., Kaylor, M., Bourgeois, B., & Hadden, K. (2008). The impact of social scripts and visual cues on verbal communication in three children with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities*, 23(2), 79–94. https://doi.org/10.1177/1088357607311447

Gates, J. A., McNair, M. L., Richards, J. K., & Lerner, M. D. (2023). Social knowledge & performance in autism: A critical review & recommendations. *Clinical Child and Family Psychology Review*, *26*(3), 665–689. https://doi.org/10.1007/s10567-023-00449-0

Gates, J. A., Kang, E., & Lerner, M. D. (2017). Efficacy of group social skills interventions for youth with autism spectrum disorder: A systematic review and meta-analysis. *Clinical Psychology Review*, 52, 164–181. https://doi.org/10.1016/j.cpr.2017.01.006

Grynszpan, O., Weiss, P. L., Perez-Diaz, F., & Gal, E. (2014). Innovative technology-based interventions for autism spectrum disorders: a meta-analysis. *Autism : The International Journal of Research and Practice*, *18*(4), 346–361. https://doi.org/10.1177/1362361313476767

Guivarch J, Murdymootoo V, Elissalde SN, Salle-Collemiche X, Tardieu S, et al. (2025). Impact of an implicit social skills training group in children with autism spectrum disorder without intellectual disability: A before-and-after study. *PLOS ONE* 12(7): e0181159. https://doi.org/10.1371/journal.pone.0181159

Hassan, M. A. bin, & Khairuddin, K. F. (2023). Social skills of children with autism during independent play activities. *International Journal of Academic Research in Business and Social Sciences*, 13(4), 1910 – 1926.

Hassan, S. U., Visvizi, A., & Waheed, H. (2019). The 'who'and the 'what'in international migration research: Data-driven analysis of Scopus-indexed scientific literature. *Behaviour & Information Technology*, 38(9), 924–939.

Karna, W., & Stefaniuk, I. (2023). The influence of peer relationships on the social development of children with autism spectrum disorder. *The Iranian Journal of Neurodevelopmental Disorders*, 2(4), 10–18. https://doi.org/10.61838/kman.jndd.2.4.2

Kasari, C., Gulsrud, A. C., Wong, C., Kwon, S., & Locke, J. (2010). Randomized controlled caregiver mediated joint engagement intervention for toddlers with autism. *Journal of Autism and Developmental Disorders*, *40*(9), 1045–1056. https://doi.org/10.1007/s10803-010-0955-5

Khatab, S., Hassan Fadi Hijab, M., Othman, A., & Al-Thani, D. (2024). Collaborative play for autistic children: A systematic literature review. *Entertainment Computing*, 50, Article 100653. https://doi.org/10.1016/j.entcom.2024.100653

Kreslins, A., Robertson, A. E., & Melville, C. (2015). The effectiveness of psychosocial interventions for anxiety in children and adolescents with autism spectrum disorder: a systematic review and meta-analysis. *Child and Adolescent Psychiatry and Mental Health*, *9*, 22. https://doi.org/10.1186/s13034-015-0054-7

Kurniastuti, I., Evanjeli, L. A., & Sari, D. P. (2023). Teachers' challenges and strategies in teaching literacy skills for children with special needs. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 7(1), 937–948. https://doi.org/10.31004/obsesi.v7i1.3598

Laugeson, E. (2021). PEERS. In: Volkmar, F.R. (eds) Encyclopedia of Autism Spectrum Disorders. Springer, Cham. https://doi.org/10.1007/978-3-319-91280-6_102157

Mujahid, I. (2022). Social skills and behavior in autism spectrum disorder during the COVID-19 pandemic. *Jurnal Konseling dan Pendidikan*,10 (1), 167-175. DOI: https://doi.org/10.29210/170000

Narzisi, A., Sesso, G., Fabbri-Destro, M., Berloffa, S., Fantozzi, P., Muccio, R., Bruzzi, G., Scatigna, S., Valente, E., Viglione, V., Milone, A., Cortese, S., & Masi, G. (2024). Social skills interventions for adolescents with level 1 autism spectrum disorder: A Systematic review with meta-analysis of randomized controlled trials. *Clinical Neuropsychiatry*, *21*(3), 169–181. https://doi.org/10.36131/cnfioritieditore20240302

Park, M. N., Moulton, E. E., & Laugeson, E. A. (2023). Parent-assisted social skills training for children with autism spectrum disorder: PEERS for preschoolers. *Focus on Autism and Other Developmental Disabilities*, *38*(2), 80–89.

Pavlou, E.-S., & Garmpis, A. (2025). Enhancing social skills in children with autism spectrum disorder through natural musical instruments and innovative digital musical instruments: A literature review. *Societies*, 15(3), 53. https://doi.org/10.3390/soc15030053

Parsons, S., & Cobb, S. (2011). State-of-the-art of virtual reality technologies for children on the autism spectrum. *European Journal of Special Needs Education*, *26*(3), 355–366. https://doi.org/10.1080/08856257.2011.593831

Prince, J., Tincani, M., & Dowdy, A. (2023). Effects of the power card strategy on social commenting of children with autism during gameplay: Strength-based intervention. *Journal of Positive Behavior Interventions*, *25*(3), 185–197.

Reichow, B., Steiner, A.M. and Volkmar, F. (2013). Social skills groups for people aged 6 to 21 with autism spectrum disorders (ASD). *Evid.-Based Child Health*, 8: 266–315. https://doi.org/10.1002/ebch.1903

Robinson, R., & Nohelty, K. (2024). Interventions to improve social and play skills for autistic children. In D. R. Dixon, P. Sturmey, & J. L. Matson (Eds.), *Handbook of early intervention for autism spectrum disorders: Research, policy, and practice* (2nd ed., pp. 379–393). Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-031-64499-3_19

Silva, R., Farias, C., & Mesquita, I. (2021). Cooperative learning contribution to student social learning and active role in the class. *Sustainability (Switzerland)*, 13(15). https://doi.org/10.3390/su13158644

Silveira-Zaldivara, T. ., Özerk, G. ., & Özerk, K. (2021). Developing social skills and social competence in children with autism. *lnternational Electronic Journal of Elementary Education* , 13(3), 341-363. DOI:10.26822/iejee.2021.195

Soares, E. E., Bausback, K., Beard, C. L., Higinbotham, M., Bunge, E. L., & Gengoux, G. W. (2021). Social skills training for autism spectrum disorder: A meta-analysis of in-person and technological interventions. *Journal of Technology in Behavioral Science*, *6*(1), 166–180. https://doi.org/10.1007/s41347-020-00177-0

Spain, D., Sin, J., Harwood, L., Mendez, M. A. and Happé, F. (2017) Cognitive behaviour therapy for social anxiety in autism spectrum disorder: a systematic review. *Advances in Autism*, 3 (1), 34-46. ISSN 2056-3868 doi: 10.1108/AIA-07-2016- 0020 Available at https://centaur.reading.ac.uk/70088/

Syriopoulou-Delli, C. K., Agaliotis, I., & Papaefstathiou, E. (2018). Social skills characteristics of students with autism spectrum disorder. *International Journal of Developmental Disabilities*, 64(1), 35–44. https://doi.org/10.1080/20473869.2016.1219101

Thiemann, K. S., & Goldstein, H. (2001). Social stories, written text cues, and video feedback: Effects on social communication of children with autism. *Journal of Applied Behavior Analysis*, 34(4), 425–446. https://doi.org/10.1901/jaba.2001.34-425

Wang, Y., Li, Z., Ye, Y., Li, Y., Wei, R., Gan, K., Qian, Y., Xu, L., Kong, Y., Guan, L., Fang, H., Gongkai, J., & Ke, X. (2025). HD-tDCS effects on social impairment in autism spectrum disorder with sensory processing abnormalities: A randomized controlled trial. *Scientific Reports*, *15*, 9772. https://doi.org/10.1038/s41598-025-93631-z

Walsh, O., Linehan, C., & Ryan, C. (2025). Is there evidence that playing games promotes social skills training for autistic children and youth?. *Autism : the international journal of research and practice*, 29(2), 329–343. https://doi.org/10.1177/13623613241277309