

# Interaction and Engagement Strategies for Children with Disabilities in Early Childhood: An Observational Study

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## Abstract

Proficient interaction and active participation are essential competencies for the advancement of communicative, cognitive, and academic capacities in youngsters, particularly for those with disabilities. Nevertheless, children with disabilities frequently have limited abilities to interact and participate, which thus restricts their involvement in different social and educational settings. The present study aims to examine the effects of incorporating interaction strategies on enhancing engagement between educators and children with disabilities throughout the early childhood period. This observational research evaluated three children, aged 3 to 4.5 years, diagnosed with autism spectrum disorder and global developmental delay undergoing individual and group rehabilitation sessions at center for early intervention services in the UAE. A thorough evaluation of teacher-student interactions was conducted in this study using the Teacher Interaction and Language Rating Scale (TILR).

The findings revealed a notable correlation between the effectiveness of interaction techniques employed by teachers and the degree of engagement shown by the children. Key determinants of the interaction-engagement process were found to include the child's communication style, the category and quantity of toys used, and the involvement of the teacher or therapist. Importantly, the results indicated that although the severity of the disability is a factor; the teacher's ability to use suitable techniques and adjust the environment had a more significant impact on promoting engagement.

The present study emphasizes the significance of employing organized child-centered interaction strategies within early childhood setting, therefore offering valuable insights for educators and therapists. Finally, it underscores the importance of conducting another comprehensive study to investigate the dynamic correlation between interaction strategies and engagement among children with disabilities, with an emphasis on enhancing participation and educational achievements.

**Keywords:** Teacher Engagement Techniques, Children with Disabilities, Interaction, Engagement, Intensive Interaction. Early Childhood Setting, Child-Centered Learning

## Introduction

The United Nations Convention on the Rights of Persons with Disabilities UNCRPD (2006) defined the term of persons with disability as those who possess longstanding physical, mental, intellectual or sensory impairments which may affect their full and equal integration and participation in a society, particularly when those impairments are combined with other various barriers.

Furthermore, the CRPD protects the right of education for people with disabilities. Alhammadi (2016) stated that the UAE is one of the first countries in the region to recognize the rights of people with disabilities by drafting a federal law in 2006 and revising it in 2009. In 2017, the UAE decided to designate the term 'determination people' for people with disabilities. On the subject of education, the UNICEF published that "Disability is one of the most serious barriers to education across the globe"

(Inclusive education | UNICEF n.d.). The UNICEF (Children With Disabilities | UNICEF USA n.d.) has highlighted that children with disabilities have receive high quality education to improve their skills and to facilitate their integration in all-inclusive programs.

Furthermore, Kemp et al. (2013) presented that the quality of education is of great importance in formal service with childcare setting. Additionally, he endorsed the idea of delivering formal childcare to children with disabilities, since one of the benefits of attending a formal setting is the development of social interaction skills. Likewise, Chen & de Groot Kim (2014) affirmed the great impact of high interactive conversation between teacher and child on literacy and language skills later. Similarly, Coelho, Cadima & Pinto (2019) from the Division for Early Childhood/National Association for the Education of Young Children, confirmed that participation is a critical key in the quality of a formal setting.

Interaction and engagement skills are considered prerequisite skills to develop communication, cognitive and academic skills later. However, when defining disabilities, it was concluded that interaction and engagement skills are limited among children with disabilities, with varying levels. For example, Hobson et al. (2013) reported that children with autism spectrum disorder have limited social interaction, social engagement and communication. The interaction and engagement literature provides an explanation about the impact of interaction and engagement on the performance of children in different domains and settings [1, 2]. Willis et al. (2017) demonstrated that engagement is a necessity between the child, the caregivers and the practitioners, however it may be limited. Support for children with disabilities could be provided by considering the factors that encourage participation.

Weitzman & Greenberg (2002) explained the importance of interaction and daily presence in a child's life to learn communication and language. Furthermore, they created a correlation between the quality of this interaction and the active engagement of the child. Literature from Pinto et al. (2019) linked the learning development and academic achievements with the quality of interaction present, while taking into consideration the physical and social background of the children. Kemp et al. (2013) noted that the limited number of studies conducted regarding the engagement and interaction for children with disabilities. Furthermore, Willis et al. (2017) claimed that the research exploring the elements of participation, particularly in therapy setting, is limited. Consequently, there is a pressing need to conduct more research that highlights the key factors and relationship between interaction and engagement process among children with disabilities.

By executing an observational study in an early intervention centre in UAE, the researcher aims to explore the effectiveness of interaction strategies in promoting engagement for children with disabilities in early childhood settings. Additionally, this paper provided an opportunity to identify the key elements that affect interaction-engagement process during the session by utilizing the mixed method. This entails reviewing literature related to the topic and observing two different sessions using an observational checklist.

Equally important, this paper will contribute to guiding educators, special education teachers and therapists to create and modify effective interaction learning environments, especially with children with disabilities. Furthermore, this papers promotes the participation of children to learn and develop , in accordance with “Article 24, Convention on the Rights of Persons with Disabilities” (CRPD) [3].

This paper seeks to address the two following questions:

1. To what extent do certain interaction strategies impact the level of engagement exhibited by children with disabilities in early childhood education settings?
2. Are there critical factors that affect the interaction process between teachers\therapists and children with disabilities?
3. To what extent may the outcomes of this study be applied to enhance practical methodologies for educators and therapists engaged in the care of children with disabilities?

## Literature

### Interaction

Interaction, according to Kemp et al. (2013), is a process of trial to communicate with others verbally or non-verbally. Kemp et al. (2013) emphasized that interaction involves a trial to communicate with others, while Weitzman & Greenberg (2002) break down interaction into initiation , response, and continuity.

Several theoretical frameworks underpin interaction in the field of developmental psychology. Perlman et al. (2016) believes that interaction is supported by essential theories in developmental psychology, such as attachment theory and Ecological Systems theory. Similarly, Hamre et al. (2021) linked the Developmental theory and interaction with the facilitation of development and learning. Furthermore, Klatte, Harding & Roulstone (2019) directed their study to social constructivist models. This study goes beyond academic discourse and emphasises the actual implementation of these frameworks for educators of disabled children.

Kemp et al. (2013) found consensus in the literature regarding limited interaction between children with ASD and their peers or communication partners. This study diverges from Kemp's findings by examining how specific interaction strategies, rather than general deficits, can enhance communication, social, and behaviour skills for children with ASD or GDD [4]. By employing observational methods, the study provides concrete examples of how teacher-student interaction can be improved through interaction schemes.

Knowledge of interaction approaches and strategies is very important to support children with disabilities. Hutchinson & Bodicoat (2015) presented one of the most common and effective approaches which is Intensive Interaction. Intensive Interaction is defined as a communication strategy (pre-verbal and verbal) for people with moderate to severe disabilities and behavioural problems. In a similar manner, Therrien & Light (2018) proposed other intervention methods such arranging a universal environment and aiding peer communication partners to learn new skills.

### Engagement

Engagement is central to successful interaction. Weitzman & Greenberg (2002) defines the engagement process as the ability of the students to reach the suitable interaction level, character-

ized by continuous and uninterrupted turn taking between the child and communication partner. Pinto et al. (2019) further defined engagement as the action when a child actively, frequently and appropriately responds to the context and environment, is attentive, interested and enthusiastic, and exhibits satisfaction and dedication to the task at hand. Not to mention, the importance of engagement quality and degree. Coelho, Cadima & Pinto (2019) listed some child characteristics that can correlate to engagement such as the degree of development, self-regulation and personality.

Furthermore, Pinto et al.(2019) classified the level of engagement based on the participating degree and involvement of children, especially for children with disabilities exhibiting limited participation. This comes into agreement with the philosophy of Weitzman & Greenberg (2002) to target educators and empower them in early childhood settings . According to the Pinto et al. (2019), results exhibited the efficacy of using a functioning approach instead of a diagnostic one, that children could be placed in groups based on the engagement rather than diagnosis, the importance of providing resources support for children and examining the social and physical context of children.

### Key Factors Affecting Interaction- Engagement Process

Several factors influence the interaction-engagement process. Pinto et al. (2019) regards that one of the key factors the readiness of an environment to build the child's independence, as one of the factors fostering interaction to be considered by the educator, while Willis et al. (2017) agreed with Kemp et al. (2013) that the environment surrounding the child affects the interaction cycle and this was measured by an eco-behavioural analysis.

Moreover, Willis et al. (2017) raised an important aspect of the rehabilitation setting which is to acknowledge the child's point of view and ways to motivate the child. They found that a child's personality traits play an important role in the child's engagement with others and the community. Furthermore, establishing effective and meaningful interaction leads to building a positive attitude towards engagement and participation. Lastly, Willis et al. (2017) summarized the factors affecting the interaction-en-

gagement process, while taking into consideration the physical adaptation activities and environments for people with disabilities: "authentic friendships, belonging, having fun, role models, having an identity, and family support" [5].

Hamre et al. (2014) listed the interaction elements impacting teaching which are : response, participation, recognizing signals, reacting appropriately, drive, control and routines, and promotion of thinking. In the context of children with ASD, Koegel et al.(2012) reported that creating integrating activities for children with ASD, based on the child's personal interests, increased their level of social participation and verbal initiation with peers. Similarly, Chen & de Groot Kim (2014) considered the critical role of an educator's ability to utilize high quality language development strategies to support deficient interaction in classrooms.

This study extends previous research by applying theoretical frameworks and intervention models to UAE early intervention situations. This research compares interaction and engagement in different environments and offers guidelines for educators and therapists to improve these processes for disabled children.

### Methodology

This paper carried out descriptive research through observation method. The author used structured practitioner observation, as explained by Leavy ( 2017). The purpose of this kind of research, as articulated by Leavy ( 2017), is to identify the problem, gather information and examine the problem.

The author conducted this paper based on different data sources. Firstly, digital databases such as the British University in Dubai Library and Lancaster University Library. Secondly, official websites including Hanen website and the ASHA website. Finally, the observational checklist.

The author aimed to include resources based on the last 10 years of publication, except for resources from Hanen in 2002. The author then assessed the quality of the studies based on keywords and sufficient details in answering the research questions. This was followed by coding and analysis, see Figure 1.

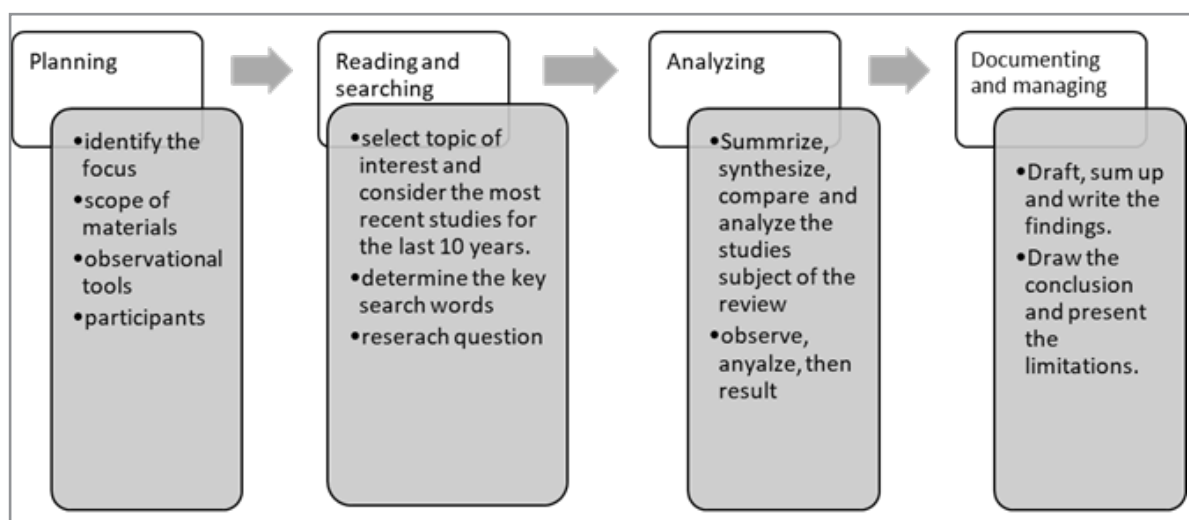


Figure 1: research stages

## Participants and Settings

The participants in this study were 3 children with disabilities, aged between 3-4.5 years, one child had ASD and other two had Global developmental delay. The children were observed and videotaped in two different rehabilitation sessions. The first session was an individual speech session for a child with ASD conducted by a speech therapist and the second session was a group educational session for the other two children for skills development conducted by a special education teacher.

Referring to the result of the speech-language assessment the child with ASD had severe language delay while the other two children have moderate language delay with a notable difference in the levels of interaction and engagement.

## Observational Tool and Method

The author used the Teacher Interaction and Language Rating Scale (TILR) developed by Girolametto, Elaine Weitzman and Greenberg. TILR is the official measurement tool designed for teacher training program in early childhood setting from Hanen organization. Based on the Anme et al. (2012) study findings, this instrument has a high level of validity and reliability. A checklist is used to assess the educators' interaction and children response and engagement. In addition, to monitor them during the program based on natural conversational approach. Scoring is done by analysing the videotaped interaction using a clear guide to measure teacher's application of interaction strategies with a numerical scale of 7 points. The teacher's ability to apply specific interactions and language strategies places him/her under one of three categories: needs improvement (from 1-3), needs fine tuning (4), satisfactory (from 5-7).

The author measured the teacher-children's engagement by calculating the number of initiatives and responses for both teacher and children. Regarding observer reliability, the author is familiar with this program and was licensed to use this tool from the Hanen centre.

## Procedure

The author considered the Codes of Ethical Conduct/Practice and the ethical standards for the British University in Dubai and got the consonant from selected centre, Participation in the study was voluntary. Then, the author discussed with participants the aim of this recorded sessions. Thus, the selection criteria for the children were based on their existing receipt of services from the collaborating participants. The session recording method was used, followed by analysing the sessions and results based on the tool, to reduce the impact of direct observation during the sessions.

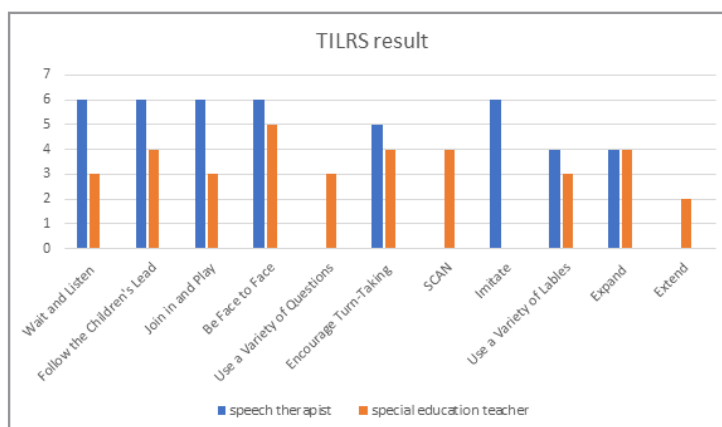
## Result

After analysing the data, the author created three sets of results: Interaction Strategies Application:

As presented in Figure 2, both the therapist and special education teacher used interaction strategies with varying skill level during the two sessions.

Moreover, some strategies were not applicable due to the setting of the sessions and the level of student abilities. Evidently, the speech therapist showed more satisfaction in resorting to strategies that are applicable to the setting and child level. However, the speech therapist exhibited the need to fine-tune his skills in two strategies: the use a variety of labels strategy and expand.

On the other hand, the special education teacher needs improvements in 5 strategies: wait and listen, join in and play, use a variety of questions, follow the children's lead, encourage turn-taking. It is also noteworthy to mention that the special education teacher was aware to utilize the face-to-face strategy. Although the teacher did attempt to facilitate interaction with both children, but he failed to guarantee that no one controls the interaction process.



**Figure 2:** Comparison of Teacher Interaction and Language Rating Scale result for both

## The Level of Engagement

After reviewing the engagement literature, the author discovered that two critical elements must be observed to determine the level of engagement between people: active presence and frequent response. Therefore, the author measured these two aspects from

the videotaped sessions: - teacher initiations - child responses, and child initiations - teacher responses. Table 1 shows an overview of the total numbers of teacher/therapist initiation and children's responses, and the Table 2 shows an overview of the total numbers of children initiation and teacher/therapist responses.



**Table :1 Teacher\Therapist initiation- children response**

	Speech therapy session	Class session	
Educators initiation	91	Child # 1	Child # 2
		36	48
Children response	44	17	26

**Table 2: Children initiation- Teacher\Therapist response**

	Speech therapy session	Class session	
Children initiation	18	Child # 1	Child # 2
		26	26
Educators response	17	10	7

studying the tables, it can be observed that the level of interaction and engagement between the therapist and child was better in the speech therapist's session. The speech therapist was more eager to observe the child's messages in all forms of communication, both unintended and intended. The therapist would then respond quickly which encourages the child to initiate. However, when comparing the child's response with the child's initiatives, the author observed that his responses were higher by 26. As a result, according to Weitzman & Greenberg ( 2002) classification, the level of this child's engagement can be considered as participating.

In contrast, the special education teacher had difficulty in controlling the pair group session and finding a balance between initiating and responding. A comparison between the number of the children's initiation- children's response indicates that children's engagement level can be classified as interacting, according to Weitzman & Greenberg ( 2002) with slight differences between them.

Nevertheless, when examining the number of teacher's responses to the children's initiatives, the results were 20% for both children. So, the level of the teacher's involvement can be considered as limited, and this affects the level of participation, involvement, and engagement.

It is noteworthy to mention, that turn-taking was ongoing in both sessions at different levels, and it was measured by the number of initiatives and responses from both parties on the same topic which was a little.

#### **Key Factors Impacting the Interaction-Engagement Process**

During the video analysis, the author observed several factors that affect and maintain interaction and engagement such as role model, environment, and activities. Some of these factors could also be found in literature such as: the child's communication style and choosing appropriate toys and activities according to

the child's personal interests. The number of toys has a critical role in facilitating interaction, achieving engagement, and minimizing undesirable behaviour.

The speech therapist acted as a partner, so he engaged actively and created a great opportunity for the child to initiate, respond and engage. This means that the speech therapist followed a child-centered approach. Conversely, the special education teacher was more of an authority figure, he utilized a teacher-entered approach which impacted the number of children's responses and initiatives.

The three children had different communication styles which affected the quality of interaction and engagement level. For example, the child with ASD had a particular style, this means that his initiatives and responses are more limited to his interests. Therefore, 44% of responses were observed when the therapist initiated. In contrast, the children with global developmental delay had a social style which allowed them to be involved and facilitated interactions with the teacher. However, the second child had slight advanced social skills which gave him greater control in the session and affected the interaction balance. This explains why the teacher interacts with him 12 times more than the first child.

An effective level of interaction and engagement between teacher-children can be reached when suitable toys are selected based on the child's developmental skills. Furthermore, attention should be paid to the number of toys selected. Both the speech therapist and special education teacher considered the children's developmental levels but failed to apply the appropriate number of toys in sessions. As a result, the children were slightly distracted sometimes.

#### **Discussion**

This paper explores the effectiveness of interaction strategies in promoting engagement for children with disabilities in early

childhood settings. Furthermore, this paper utilizes an observational method to examine the key elements that affect interaction-engagement process during the session.

Admittedly, the speech session was more interactive and achieved better engagement due to the therapist's ability to apply strategies and the role of the therapist select toys and activities according to the child's personal interests [5]. Moreover, the differences in communication styles have a significant effect on the number of children's initiation and response, which directly impacts the level of interaction-engagement process [6].

The author found that the role of the therapist is critical in achieving engagement through establishing effective interaction and a balance between the number of initiatives and responses between the two parties as Weitzman & Greenberg (2002) highlighted. The author discovered that effective interaction and a better level of participation for children with disabilities can be achieved through several factors. Furthermore, there is a strong correlation between these factors, such as the teacher's ability to apply interaction strategies, selecting the right toys and suitable number befitting of the child's the developmental stage, the environment and the role of the teacher and the child's communication style, this comes into agreement with Pinto et al. (2019) and Willis et al. (2017) [7-10].

Moreover, the teacher who is considerate of a child's interest and his indirect messages can increase the interaction level and the child has a chance to take more turns. This finding agrees with previous research from Willis et al. (2017), Hamre et al. (2014), Koegel et al. (2012) & Chen & de Groot Kim (2014). Interestingly in this paper, the degree of disability severity was not a primary factor influencing the level of children's interaction and engagement. The application of interaction strategies and the role of the teacher were the primary factors raising the level of engagement. This comes into agreement with Pinto et al. (2019) [11-15].

## Conclusion

The present study has demonstrated the important role of interaction strategies to encourage engagement for children with disabilities and highlighted the key factors that affect the outcome of interaction and involvement. Moreover, there is a demand to implement structured and direct educational methods which take into account areas of a child's development and focus on the engagement of both child and adult to facilitate intervention for children, particularly those with disabilities. The limitations of this study are the small sample size and the need to integrate a specific tool for measuring engagement [16-21].

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